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ABSTRACT

This report describes the objectives of the Boston College Mathematics Institute and its activities to date. The contents include summaries of the programs of all the campus institutes held between 1957 and 1968; outlines of the instructional materials produced during this period; information on the Computer Research Center; and plans for future activities. Appendices give details on the faculty of the Institute and their assignments, and other personnel involved in the work of the Institute; the non-research Master of Arts degree developed for teachers enrolled at the institutes; and a sample of teachers (and their schools) who have used the materials produced by the Institute. (MM)

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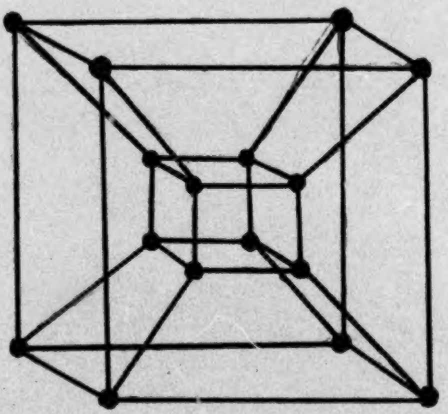
BOSTON COLLEGE

MATHEMATICS INSTITUTE

CUMULATIVE REPORT

June 1957 - September 1968



Stanley J. Bezuszka, S.J.
Director

SE 012 516

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Boston College Mathematics Institute
Cumulative Report

I. Introduction

The Cumulative Report of the Mathematics Institute at Boston College encompasses the period June, 1957 through August, 1968. The primary purpose of this report is to describe the activities and responsibilities of the Institute. An earnest attempt is made to present a clear summary of the major areas of concentration since the formation of the Institute as a unit distinct from the Mathematics Department of the University in June, 1957. The narrative section of the report embodies the philosophy and history of the Institute. The appendices contain pertinent facts and figures.

II. The Philosophy and Objectives of the Institute

The Boston College Mathematics Institute was established for a specific purpose. In 1957 and throughout the fifties, there was an urgent need to improve the content and teaching of mathematics at the secondary school level and in fact at all levels. During this period several educators in the field of mathematics showed concern and attempted to resolve the situation in the schools. These men instituted and headed projects that were to be dedicated to the role of changing and stimulating the teaching of mathematics. The Boston College Mathematics Institute was one of these groups. Each of the projects had its own particular credo and modus operandi. Eventually, due to the efforts of these nationally recognized organizations, significant modifications and in many instances full scale upheavals have been effected in the mathematics course of study in the nation's elementary and secondary schools. More recently, the various projects in the States have served as a model for foreign educators and now similar innovations are in progress in foreign countries.

Why was there this need to alter the mathematics curriculum and to start a revolution? Essentially the reason was that classroom teaching and commercial texts had not kept pace with the increasing demands of a modern society. This created a backlash. Many students had lost interest permanently in mathematics by the time they graduated from high school. Some of these were able students who refused to elect mathematics courses in college. Yet society required more mathematicians for industrial and research purposes than ever before. It was the task of the national reform groups in mathematics education to resolve the problem.

The Boston College Mathematics Institute Staff share the conviction that the education of the teacher is the most important factor involved in any curriculum change. Therefore, the primary objective of this Project has been and still is the education and reeducation of teachers in the content, theory, and terminology of contemporary mathematics. Administrators are far more willing to initiate change in courses if they have faculty who are able to teach the new matter. This objective has been achieved to a great extent through the operation of institute programs that are available to teachers on a national scale. The goal of each institute has been to instruct each teacher in the theoretical aspects and practical usage of modern mathematics. Since June, 1957 approximately 3,500 teachers have participated in some formal course under the direction of the Mathematics Institute.

The courses offered in the institute program are teacher-oriented both in content and presentation. Texts specially written at the Mathematics Institute have been used in a number of the courses. Thus the teachers were not only exposed to new content but they were also provided with some materials for experimentation in their own classes. Each of the national projects has published written materials which reflect their philosophy. Actually, the secondary objective of the Institute is to develop texts and related materials for the teacher and student. The materials prepared by the Boston College Project indicate a stress on the historical and structural approaches to mathematics. The various texts are described in Section VII of this Report.

The faculty who offer the institute courses understand and are sympathetic to the needs of the secondary school teacher. The pace in each course is rigorous and the work is demanding. During the first few years, teachers were interested in learning mathematics for its own sake. Many chose to simply be exposed to the matter as auditors. Then the academic climate changed. The teachers were still anxious to learn, but not in isolated courses. They wanted to participate in a formal degree program. The acquisition of a degree would add prestige to their position and give them the opportunity to bargain for better salaries and better posts. Other universities operating government-funded institutes experienced this same problem. There were two solutions that were considered appropriate by university officials. Some colleges offered the teachers the opportunity to enroll in Master of Education or Master of Arts in Teaching Programs. Other institutions developed a new degree. After careful deliberation with the Dean of the Graduate School, Boston College offered the teachers the opportunity to pursue graduate studies leading to the Non-research Master of Arts Degree in Mathematics. The basic requirements for this degree are highlighted in Appendix G of this report.

Since the number of teachers who have the chance to attend courses at institutes is insignificant in comparison with the total number of secondary mathematics teachers, the Mathematics Institute at Boston College has another objective to consider. This objective is to prepare the teacher participants in the institutes to become teachers of teachers. It has been our experience that many teachers have returned to their school systems to instruct their colleagues at the secondary level in in-service classes. There are various types of in-service classes. Frequently a former participant is invited to instruct the elementary school teachers in his district. Some former students have even given a series of lectures in contemporary mathematics to anxious parents. Much of this in-service work is carried on in conjunction with Boston College. In such instances, the text materials are purchased from the Mathematics Institute. In addition, the participant often seeks the advice of staff members at the Institute relative to the treatment of topics and planning lectures.

Another objective of the Mathematics Institute is to design and construct machines at a feasible cost for the secondary school budget which will supplement the teaching of modern mathematics in a contemporary classroom. These devices are not intended to be teaching machines and hence to replace the teacher. They are meant for the student who needs drill in a specific topic in mathematics.

A more recent objective has been to develop a computer-oriented mathematics course for the secondary classroom. Now that computers have invaded so many university campuses, it won't be long before they become a permanent fixture in at least the larger suburban secondary schools. In fact, for the past few years pilot programs at the secondary level have been sponsored by universities, industry, or state departments of education. The Mathematics Institute has been involved in activities relating to the role of the computer in the secondary school mathematics class. In particular, courses of instruction in computer programming and operation have been offered to secondary school students and teachers. Hopefully, this program will be continued and extended.

In summary, the major objective of the Boston College Mathematics Institute is to assist in the national cause of revitalizing the mathematics curriculum. All other objectives are subsidiary to this goal.

III. Program Summary of Campus Institutes and Workshops

Summer Mathematics Workshop 1957 (41 participants)

The first step in the re-education of high school teachers of mathematics was a Summer Workshop sponsored by Boston College. The primary goal of the Workshop was to convince the teachers that serious changes in the mathematics curriculum were not only contemplated on the national level, but in some cases were already in effect. The Workshop sponsored nationally known mathematicians and curriculum directors who indicated and discussed not only the direction but also the scope of the proposed changes in the new mathematics curriculum. No attempt was made in the Workshop to give a course in any of the topics of modern mathematics. Basically, we had a selling job to do and simply overwhelmed the teachers with men and facts from at least two-thirds of the nation. The teachers were convinced. Something had to be done and done in a hurry. Conferences were held after classes during the last week of the Workshop and at the conclusion of the Workshop. A program was outlined for the academic year 1957-1958. Boston College through its Mathematics Institute would sponsor an In-Service Institute in Mathematics for teachers of mathematics.

Modern Mathematics Workshop Program July 8 - July 26, 1957

1. Msgr. Timothy F. O'Leary, Superintendent of Schools, Archdiocese of Boston
   TOPIC: 'Mathematics in the Archdiocesan Schools'.
2. Rev. Stanley J. Bezuszka, S. J., Chairman, Department of Mathematics, B. C.
   TOPIC: 'Number and Number Concepts'.
3. Commissioner John J. Desmond, Department of Education, Commonwealth of Mass.
   TOPIC: 'Mathematics in the Public Schools'.
4. Professor Elmer Mode, Chairman, Department of Mathematics, Boston University
   TOPIC: 'Statistics in the Modern Mathematics Curriculum'.
5. Rev. John MacDonnell, S. J., Weston College
   TOPIC: 'Fundamental Concepts in Topology'.

6. Mr. Albert E. Meder, Jr., (Dean of Administration and Professor of Mathematics, Rutgers University) Executive Director, Commission on Mathematics.
   TOPIC: 'Modern Mathematics and College Entrance Examinations'.
   'Modern Mathematics Program and the Mathematics Curriculum'.
7. Rev. John MacDonnell, S. J., Weston College
   TOPIC: 'Adaptations of Topological Concepts for Introductory Courses'.
8. Mr. Robert Gildea, RCA Airborne Systems Lab., Computing Section, Supervisor, Waltham, Massachusetts.
   TOPIC: 'Number Systems'.
9. Professor Frank Verzuh, Assistant Director, M.I.T. Computation Center, Cambridge.
   TOPIC: 'The 704 Program'.
10. Rev. John Caulfield, S. J., Department of Mathematics, Boston College
    TOPIC: 'Elementary Set Theory'.
11. Professor Jackson B. Adkins, Chairman, Department of Mathematics Phillips Exeter Academy, New Hampshire.
    TOPIC: 'Unified Mathematics for the Junior and Senior High Schools'.
12. Rev. Stanley J. Bezuszka, S. J., Chairman, Department of Mathematics, B. C.
    TOPIC: 'Introduction to Group Theory'.
13. Professor John Kemeny, Chairman, Department of Mathematics, Dartmouth College.
    TOPIC: 'Finite Mathematics'.
14. Rev. Stanley J. Bezuszka, S. J., Chairman, Department of Mathematics, B. C.
    TOPIC: 'Introduction to Formal and Symbolic Logic'.
15. Professor Max Beberman, Director, UICSM Mathematics Project, U. of Illinois.
    TOPIC: 'The UICSM Project in Mathematics'.
16. Dr. Nazzareno P. Cedrone, Section Director, Raytheon Corp., Maynard, Mass.
    TOPIC: 'Mathematics for Industrial Programs'.
17. Rev. Stanley J. Bezuszka, S. J., Chairman, Department of Mathematics, B. C.
    TOPIC: 'Modern Mathematics Programs'.

Statistics on Modern Mathematics Workshop July 1957

1. 41 people took part in the Workshop. In addition, guests were invited to the lectures.
2. There were 35 schools represented.

3. There were 26 cities and towns represented.
4. There were 6 states and the District of Columbia represented.

In-Service Institute 1957-1958 (104 Participants.)

The experience with the teachers in the Summer Workshop indicated there were many problems connected with any contemplated curriculum change and re-education of the teachers. The major problems are listed below:

1. Courses in modern mathematics aimed only at teacher education, though useful, were not sufficient. The teachers were still teaching traditional textbooks in the classrooms and whatever personal information was gained in the Institute would not or could not be used at once in the classrooms.
2. Text materials had to be prepared which would incorporate and integrate the modern approach to Algebra, Geometry, Trigonometry, Analytic Geometry and Analysis.
3. Even after the text material was prepared there was the problem of convincing Superintendents, Administrators, Principals, and Chairmen of departments that the material should be put into the classrooms.
4. Parents had to be assured that their children would not be placed at a disadvantage by enrolling in the modern mathematics courses. In practice, this meant that the students who took the modern mathematics should be capable of taking and favorably passing the college board examinations.

In the light of the above problems, the In-Service Institute proceeded slowly, cautiously, and with some compromises. A preliminary text: Sets, Operations and Patterns was prepared (aimed at approximately the ninth grade level algebra). Ten or more pages of the text were edited and distributed at each class with appropriate extension lectures on the material for teacher depth and information.

The teachers experimented in their classes with the new material during the week while devoting a major portion of the time to the traditional course in the algebra. In the following Institute class, the text material was re-examined, criticized, changed and rewritten on the basis of the teacher classroom experiences.

There were two results from the In-Service Institute:

1. The teachers realized that the students were interested in, enjoyed and mastered the new material. There was an atmosphere of enthusiasm and adventure in the mathematics classes which surprised and delighted the teachers.
2. An all-out effort should be made to convince other teachers and especially administrators that the existing mathematics curriculum should be revised.

In-Service Institute Program September 1957 - May 1958

Course 1. Mt T-100 (Boston College) (60 Participants.)
Mt T-100 (Mt. St. Joseph Academy, Brighton, Mass.) (31 participants.)
Concepts and Methods of Modern Mathematics for the High School
Instructor - Stanley J. Bezuszka, S. J., Chairman, Department of Mathematics, Boston College.

Course 2. Mt T-150 (Boston College) (13 participants.)
Concepts and Methods of Modern Mathematics for the Elementary School
Instructor - Dr. Russell G. Davis, Director of Educational Research, Boston College.

Statistics for the In-Service Institute 1957 - 1958

1. The total enrollment for the classes was 104
2. There were 61 schools represented.
3. There were 30 cities and towns represented.
4. There were 4 states represented.

Summer Institute 1958 (88 participants)

The experimental text: Sets, Operations and Patterns was rewritten and ready for the Summer Institute. The majority of the teachers who sent in applications for the Summer Institute were not those who had attended the previous Summer Workshop or the In-Service Institute. The latter teachers had had the material to be covered and there was no need to repeat it for them. It was at once apparent that no matter how appealing the text might prove to this new group of teachers who had not experimented with the modern mathematics, they would still doubt that it could be taught to ninth grade students. To resolve this doubt of the teachers, a demonstration class of approximately thirty-eight students was recruited (i. e. students who had completed the eighth grade) from nineteen schools. Originally, we had asked for the top boy and girl from each school. Actually, we did not get the best students from each school. Some students could not accept the invitation because of the distance from Boston College, or because of previous commitments, etc. We did get students from the upper quarter of their classes.

The reaction of the teachers to the demonstration class was most favorable. The teacher participants frequently brought Department chairmen, supervisors, directors of studies, etc. to the demonstration classes. The demonstration class was quite effective in convincing the teachers that the new material was interesting and could be grasped by students at the high school level.

Summer Institute Program July 7 to August 1, 1958

Course 1. Introductory Course in Modern Mathematics for the High School.

Part A. Demonstration Class of Students. Class used Sets, Operations and Patterns for a text.

Part B. Discussion of demonstration class matter and techniques with the teachers.

Part C. Lectures on topics of Modern Mathematics with applications to Physical Sciences.

Instructor: Stanley J. Bezuszka, S. J., Chairman, Department of Mathematics, B. C.

Course 2. Elementary Topics in Statistics.

Text: Introductory Probability and Statistical Inference for Secondary Schools Commission on Mathematics, College Entrance Examination Board.

Instructor: Russell G. Davis, Director of Educational Research, B. C.

Statistics for the Summer Institute 1958.

1. The total enrollment for the classes was 88.
2. There were 77 schools represented
3. There were 56 cities and towns represented.
4. There were 13 states and D. C., Puerto Rico, and Iraq represented.

In-Service Institutes 1958 - 1959 (50 NSF Grants, 72 University Guests, Total 122)

In September, 1958 an in-service program conducted by Boston College under the auspices of the National Science Foundation was initiated. The National Science Foundation proposal listed the two courses as:

Course 1. Integrated Algebra and Geometry and Introduction to the Calculus.

Course 2. Introductory Descriptive and Inferential Statistics.

The objective for Course 1 was quite clear. The course was a revised and supplemented version of that presented during 1957 - 1958. The teachers used the text: Sets, Operations and Patterns. By this time 3 more chapters had been written (Course 1 now included Chapters 1 to 9 inclusive.) The text provided the teachers with a usable book in modern algebra. Approximately 40 teachers in as many schools began using the text in the classroom either as a class text with or without standard material or in study clubs or as an extra activity. The list of teachers and schools is given in the Appendix. The text was also used in the In-Service Institute as a foundation for unifying selected topics in modern algebra, for teacher depth, and for the extension of the concepts of modern mathematics.

The objectives for Course 2 were not as clear as those for Course 1. The motivation for the inclusion of Course 2 was based on two facts:

a. There was no clear cut policy in the various high schools for courses for the second semester of the senior year. Many high schools gave a Review Mathematics course which was really little more than an attempt to prepare the students for the College Board Examinations.

b. The Commission on Mathematics had prepared an experimental course in Introductory Probability and Statistical Inference (The Gray Book) for Secondary Schools. This was intended for the senior year of high school.

It was felt that the Probability and Statistics course was a good start in breaking the tradition of the Review Mathematics course in the high schools. Moreover, if this particular course had real merit, it would prove an important addition to the high school mathematics curriculum.

Results: 1. We had originally planned to have 25 participants in each of the two courses. However, very few teachers applied for Probability and Statistics Section. Thus, we had 19 teachers only in the course.

Most teachers were overwhelmingly in favor of the Algebra course. As a matter of fact, about 6 of the 19 in the Probability and Statistics class came to the Algebra class on Saturdays. The Probability and Statistics course on the whole was not favorably received. The less difficult part on Sets, etc. was more interestingly presented in Sets, Operations and Patterns. The more difficult parts were obscure or dull. There had been a similar reaction to the Commission's Text in the Summer Institute of 1958.

2. We had the Summer Demonstration Class back for one day in November. Many of the teachers were impressed with the amount of material the students had remembered from the previous summer. Only about 3 or 4 of the 1958 summer students were attending schools where the material was introduced in the classes or study groups in September 1958.
3. Some of the material for Course 2 of Sets, Operations and Patterns was introduced into the discussions of the In-Service Institute.

In-Service Institute Program October 1958 - May 1959

Course 1 Mt. - NSF 1. (31 participants - 84 University guests*)

Integrated Algebra, Geometry and Introductory Calculus.

Instructor - Stanley J. Bezuszka, S. J., Chairman, Department of Mathematics, Boston College.

Course 2 Mt. - NSF 2 (19 NSF participants - 5 University guests*)

*Some of the NSF participants in Course 2 were University Guests in Course 1, and some of the NSF participants in Course I were University guests in Course 2.

Introductory Descriptive and Inferential Statistics.

Instructor: Prof. Russell G. Davis, Ph. D., Director of Educational Research, Boston College.

Statistics for the In-Service Institute 1958 - 1959

1. The total enrollment for the Institute was 122.
2. There were 81 schools represented.
3. There were 50 cities and towns represented.
4. There were 4 states represented.

Summer Institute 1959 (41 Grants, 48 University Guests, Total 89)

The objectives for the Summer Institute were determined on the basis of

1. the experience with teacher participants in the Summer Workshop (1957), In-Service Institute (1957-1958), the Summer Institute (1958), the In-Service Institute (1958-1959).
2. the reports of cooperating teachers who used some of the new material in the experimental text of modern mathematics, Sets, Operations and Patterns (by Stanley J. Bezuszka, S. J.) in approximately forty high schools with about six hundred ninth grade students during 1958-1959.

Teachers in all the above categories confirmed the merits of the original Boston College plan to prepare teachers of mathematics for the modern era by

a. providing a textbook of material in modern mathematics, and
b. extending the depth and range of the teachers in mathematical background for an effective teaching of the new material and real appreciation of the implications of the new trends in mathematics.

Part (a) above was to be a four year project of the Boston College Mathematics Institute. The first year (approximately ninth grade) material was ready in the text Sets, Operations and Patterns, Course 1. While the rest of the text material was being prepared, the teachers were interested mainly in Part (b), viz. an adequate training in the concepts and material of modern mathematics for effective teaching in the classroom.

The Summer Institute programmed courses around the text: Sets, Operations and Patterns which would

a. develop in detail some of the concepts outlined in the text so that the text could be taught at once.
b. project some of the ideas of the text in order to prepare the teachers for succeeding courses in modern algebra, and
c. provide immediate training for those teachers whose schedule included not only the modern algebra, but also the topics of modern geometry.

The popularity of a Demonstration class of students who had completed the eighth grade in conjunction with the Algebra course was evident in the Summer Institute of 1958. This phase of the program was incorporated into the Summer Institute of 1959 by a supplementary grant from the National Science Foundation. Experience has confirmed that next to the actual teaching of modern mathematics by a teacher in a classroom, the Demonstration class is the most effective means of resolving some of the teacher's doubts about the effectiveness and teachability of modern mathematics to modern students.

Summer Institute Program July 6 to August 14, 1959

Course 1. Mt. NSF 1 (41 NSF Participants - 48 University Guests.)
Concepts of Elementary and Intermediate Algebra Treated from the Standpoint of Modern Algebra.
Instructor: Stanley J. Bezuszka, S. J., Chairman
Department of Mathematics, Boston College.

Course 2. Mt. NSF 3 (41 NSF Participants - 48 University Guests)
Introduction to the Basic Concepts and Operations of Symbolic Logic.
Instructor: Walter Feeney, S. J., Department of Mathematics, Boston College

Course 3. Mt. NSF 4 (41 NSF participants - 48 University guests).
Geometric Systems: Fundamentals of Euclidean and Non-Euclidean Geometries.
Instructor: Prof. Louis O. Kattsoff, Ph. D., Department of Mathematics
Boston College.

Statistics for the Summer Institute 1959

1. The total enrollment for the Institute was 89.
2. There were 83 schools represented.
3. There were 64 cities and towns represented.
4. There were 19 states represented.

Academic Year Institute - September 21, 1959 to June 24, 1960

(40 National Science Foundation Sponsored Participants)

In 1959-1960, Boston College conducted an Academic Year Institute for 40 High School Teachers of Mathematics (Junior, Senior High level) which was sponsored by the National Science Foundation. The Institute was planned for teachers of mathematics with at least 3 years classroom teaching experience and average mathematical ability but whose

a. professional background in mathematics was acquired either too long ago, or

b. training, though recent, did not include courses in the development and modern aspects of the various fields of twentieth century mathematics.

The experience of the previous Boston College Institutes indicated rather conclusively that the high school teachers were interested primarily in

1. modern mathematics courses which could become an integral part of the high school curriculum without a drastic change in the school teaching personnel or undue pressure on the administrative structure of the school system;
2. modern mathematics courses which would increase and develop the professional competence of the teacher not only for direct teaching in the classroom but also for the direction of the superior students in private study, extra-curricular projects, guidance and future careers in mathematics;
3. modern mathematics courses which would be suitable for the teaching of modern physics courses, since many teachers were responsible for both subjects, either formally in class or informally in discussions with students.

The two main mathematical structures studied in the high schools are Algebra and Geometry. The Academic Year Institute course program was selected to provide material and training in both these fields.

Academic Year Institute Program September 1959 to June 1960

Semester 1	Course 1	Mt. 215-NSF	Elementary and Intermediate Algebra Treated from the Standpoint and Methodology of Modern Algebra.
		Instructor:	Stanley J. Bezuszka, S. J. , Chairman Department of Mathematics, Boston College
	Course 2	Mt. 257-NSF	Geometric Systems: Elements of Euclidean and Non-Euclidean Geometries.
		Instructor:	Lorenzo Calabi, Associate Professor Department of Mathematics, Boston College
	Course 3	Mt. 289-NSF	Introduction to the Concepts and Operations of Mathematical (Symbolic) Logic
		Instructor:	Walter Feeney, S. J. , Assistant Professor Department of Mathematics, Boston College

Course 4 Mt. 295-NSF Fundamentals of Functional Analysis and Analytic Geometry.
Instructor: Mrs. Jacqueline L. Criscenti, Assistant Professor, Department of Mathematics, Boston College

Semester 2 Course 1 Mt. 231-NSF Elements of Functions of a Real Variable.
Instructor: Stanley J. Bezuszka, S. J.

Course 2 Mt. 235-NSF Elements of Functions of a Complex Variable.
Instructor: Mrs. Jacqueline Criscenti

Course 3 Mt 131-141-NSF Vector Analysis and Linear Algebra.
Instructor: Stanley J. Bezuszka, S. J.

Course 4 Mt. 151-NSF Introduction to Probability Theory.
Instructor: Lorenzo Calabi

Summer Course 1 Mt. 243-NSF Applications of Modern Mathematics to the Concepts and Methodology of Modern Physics.
Instructor: Stanley J. Bezuszka, S. J.

Course 2 Mt. 152-NSF Probability and Statistical Inference.
Instructor: Lorenzo Calabi

The first semester work centered on Sets, Operations and Patterns. The Geometry and Symbolic Logic treated in greater detail the topics outlined and discussed in Sets, Operations and Patterns. The Mathematical Analysis course provided a gradual but rigorous introduction to analysis (in the second semester).

The second semester work was planned on the assumption that the first semester courses would prepare the teachers to do rigorous work in analysis. In general, the Real and Complex Analysis gave the teachers a great deal of trouble. This may be due to the fact that not many of the teachers expected to work in the Calculus when they returned to their schools (and so the motivation for the courses was not ideal). It also was difficult for the teachers to grasp the need and significance of mathematical rigor in proofs and procedures.

The Vector Analysis and Linear Algebra was to provide a foundation for the applications of mathematics to physics (the summer course). Since the Vector Analysis relied on the foundation course in the Real Variable, the teachers who had trouble with the Analysis also had trouble with the Vector Analysis. Moreover, some of the illustrations based on simply physical situations indicated that the teachers were not sufficiently familiar with the terminology or the problems of physics to follow the course with profit. Further simplification of the analysis courses will be necessary to give the teachers the full benefit of rigorous mathematical thinking.

The probability and statistics courses were somewhat of a compromise. Although these courses were neither too popular nor successful in previous institutes, it was felt that perhaps teachers doing full time study and taking the probability theory prior to statistics would eventually find these courses interesting and even adaptable for the high school students. The teachers have found the probability course with text: Finite Mathematical Structures, Kemeny, Mirkil, Snell and Thompson, interesting but somewhat difficult. The statistics course and the applications to physics course were given during the month of June. Those teachers who received the 30 graduate credits named above, provided they possessed the necessary pre-requisites, and who satisfied the other requirements were eligible to receive the Non-research Master of Arts Degree in Mathematics.

Statistics for the Academic Year Institute 1959-1960

1. The total enrollment for the Institute was 40.
2. There were 40 schools represented.
3. There were 39 cities and towns represented.
4. There were 19 states and the District of Columbia represented.

In-Service Institute - October 3, 1959 - May 28, 1960

(60 NSF Participants - 72 University Guests(some of these only visited the class occasionally))

The In-Service Institute for 1959 - 1960 was a continuation of the In-Service Program of 1958 - 1959 in Sets, Operations and Patterns. Originally, the plan was to give the teacher participants material for Course 2, Part 1 of Sets, Operations and Patterns. This plan was slightly modified. Experience with the above text in the cooperating schools showed that more material should be included in Course 1. A part 3 for Course 1 was written which included material on fractions, decimals, ratio, proportion, etc. and a continuation of some of the geometric concepts presented in Part 2 of Course 1.

Practically all of the participants had previously had formal classes at summer or in-service institutes at Boston College in Sets, Operations and Patterns, Course 1, Parts 1, 2. A few teachers who had worked on the material privately and had progressed sufficiently to follow Part 3 of Course 1 were admitted to the In-Service Institute.

A Demonstration class of students was also an integral part of the present Institute. Only students who had participated in a previous Demonstration class in Sets, Operations and Patterns, Course 1 Parts 1, 2 or who had the course formally in one of the cooperating schools were considered for active participation in the class. During the year, several students who had heard about the class were admitted as auditors. There was a total of approximately fifty students in the Demonstration class.

In-Service Institute Program October 3, 1959 to May 28, 1960

Course 1 Mt NSF 5 Intermediate Algebra Integrated with Plane and Analytic Geometry

Instructor: Stanley J. Bezuszka, S. J., Chairman
Department of Mathematics, Boston College.

Statistics for the In-Service Institute 1959 - 1960

1. The total enrollment for the Institute was 132.
2. There were 93 schools represented.
3. There were 51 cities and towns represented.
4. There were 5 states represented.

Summer Institute - June 27 to August 5, 1960

(59 NSF Participants, 32 Tuition Students -/ some of these were from the Academic Year Institute of 1959-1960 who were making up pre-requisites for their degrees and others were eligible high school teachers of mathematics who later received partial stipends from the NSF/ and 17 University Guests.)

During the summer of 1960, Boston College conducted a Summer Institute in two sequences for junior and senior high school teachers of mathematics. These teachers, in order to qualify, should have had at least 3 years of teaching experience and should have been of average mathematical ability. Some of the participants who were to be chosen for the Institute had attended previous Boston College Institutes (or at least some institute at another university). These were the people who would comprise the Sequence 2. As in the preceding Institutes, both sequences were built around the specially prepared high school text, Sets, Operations and Patterns. The main objectives of the six week Institute were to provide the teacher with the major concepts of modern mathematics and a text on modern mathematics which could immediately be used in a classroom situation.

Summer Institute Program June 27 to August 5, 1960

SEQUENCE 1.

Course 1. Mt.-NSF 1 (43 NSF Participants, 19 Tuitions, 7 University Guests)
Concepts of Elementary and Intermediate Algebra Treated from the Standpoint of Modern Algebra
Instructor: Stanley J. Bezuszka, S. J., Chairman
Department of Mathematics, Boston College
A Demonstration class of 7th and 8th grade students was a formal part of this course.

Course 2. Mt.-NSF 6 (59 NSF Participants, 23 Tuitions, 15 University Guests)
Introductory Modern Algebra
Instructor: Professor Louis O. Kattsoff, Ph. D., Department of Mathematics, Boston College.
This course was common to both sequences.

Course 3. Mt.-NSF 3 (43 NSF Participants, 19 Tuitions, 7 University Guests)
The Basic Concepts and Operations of Symbolic Logic.
Instructor: Walter Feeney, S. J., Department of Mathematics
Boston College.

SEQUENCE 2.

Course 1. Mt.-NSF 5 (16 NSF Participants, 5 Tuitions, 10 University Guests)
Intermediate Algebra with Elements of Plane and Analytic Geometry.
Instructor: Stanley J. Bezuszka, S. J., Chairman
Department of Mathematics, Boston College

Course 2. Same as the above Course 2

Course 3. Mt.-NSF 7 (16 NSF Participants, 7 Tuitions, 10 University Guests)
Elements of Mathematical Analysis

Instructor: Joseph A. Sullivan, Ph. D., Department of Mathematics
Boston College

Statistics for the Summer Institute 1960

1. The total enrollment for the Institute was 108.
2. There were 101 schools represented.
3. There were 84 cities and towns represented.
4. There were 23 states represented. In addition there were participants from Austria, Jamaica (B. W. I.), Bermuda, Puerto Rico, and the District of Columbia.

Academic Year Institute - September 19, 1960 - June 23, 1961

(42 NSF Participants, 1 Tuition Student)

During the school year 1960-1961, Boston College under a Grant from the National Science Foundation sponsored its second Academic Year Institute for high school teachers of mathematics. The Institute was prepared for teachers with at least two years of teaching experience and average mathematical ability who needed training in the teaching of and background in the various aspects and concepts of the modern mathematics. The main purpose of the Institute was to retrain the older teachers whose experience was far removed from the modern mathematics and to initiate the younger teachers whose academic work did not include courses in modern mathematics.

The course program for 1960 - 1961 was similar to that of 1959 - 1960. (cf. p. 13 of this Report) The courses were designed to supplement and give background to the concepts in the text, Sets, Operations and Patterns. They were planned to give the high school teacher a thorough and solid foundation in the fields of algebra, geometry and analysis.

Academic Year Institute Program September 1960 to June 1961

Semester 1 **Course 1** Mt. 215-NSF Elementary and Intermediate Algebra Treated from the Standpoint and Methodology of Modern Algebra.

Instructor: Stanley J. Bezuszka, S. J., Chairman
Department of Mathematics, Boston College.

Course 2. Mt. 233-NSF Modern Algebra I.

Instructor: Louis O. Kattsoff, Ph. D., Professor
Department of Mathematics, Boston College.

Course 3. Mt. 289-NSF Introduction to the Concepts and Operations of Mathematical (Symbolic) Logic
Instructor: Walter Feeney, S. J., Assistant Professor,
Department of Mathematics, Boston College.

Course 4. Mt. 295-NSF Fundamentals of Functional Analysis and Analytic Geometry.
Instructor: Jacqueline L.Criscenti, Assistant Professor,
Department of Mathematics, Boston College.

Semester 2 Course 1. Mt. 231-NSF Elements of Functions of a Real Variable.
Instructor: Stanley J. Bezuszka, S. J.

Course 2. Mt. 234-NSF Modern Algebra II.
Instructor: Louis Kattsoff

Course 3. Mt. 235-NSF Elements of Functions of a Complex Variable.
Instructor: Jacqueline L. Criscenti

Course 4. Mt. (131-141)NSF Vector Analysis and Linear Algebra
Instructor: Stanley J. Bezuszka, S. J.

Summer Course 1. Mt. 152-NSF Probability and Statistical Inference
Instructor: Gerald G. Bilodeau, Ph. D., Assistant Professor
Department of Mathematics, Boston College.

Course 2 Mt. 243-NSF Applications of Modern Mathematics to the Concepts and Methodology of Modern Physics.
Instructor: Stanley J. Bezuszka, S. J.

Statistics for the Academic Year Institute 1960 - 1961

1. The total enrollment for the Institute was 43.
2. There were 43 schools represented.
3. There were 43 cities and towns represented.
4. There were 19 states and the Philippines represented.

In-Service Institute - September 24, 1960 to May 27, 1961

(60 NSF Participants, 3 Tuition Students, 40 University Guests-
(some of these only visited the class occasionally)).

The In-Service Institute 1960 - 1961 continued the work of the In-Service Institutes of 1958-1959, and 1959-1960, i. e. the course in this particular Institute consisted of the new material that was to be part of the text, Sets, Operations and Patterns. A Demonstration class was a necessary part of the Institute program since it was used to determine which topics were to be covered and in what way they could be most effectively incorporated in the text. The members of the Demonstration class were students who had participated in earlier in-service or summer institutes. The format of the Institute was similar to that of the 1959-1960 Institute. The Demonstration class was conducted for one hour with the junior and senior high school mathematics teachers observing the lesson. Then for two hours a formal and more concentrated lecture on the same material was given to the teachers. The teacher participants in the course for the most part had attended one or two of the preceding In-Service Institutes. A few new teachers were accepted but were required to make up the work of the earlier Institutes privately. In addition to the formal lectures given to the teachers, there were classes in which visiting lecturers were invited to speak on related topics in modern mathematics and classes in which the cooperating teachers (those teaching Sets, Operations and Patterns in their own schools) gave reports.

In-Service Institute Program September 24, 1960 to May 27, 1961

Course 1.	Mt. -NSF 8	Intermediate Algebra Integrated with Plane and Analytic Geometry (continuation).
	Instructor:	Stanley J. Bezuszka, S. J., Chairman, Department of Mathematics, Boston College.

Statistics for the In-Service Institute 1960 - 1961

1. The total enrollment for the Institute was 103.
2. There were 81 schools represented.
3. There were 48 cities and towns represented.
4. There were 3 states represented.

Cooperative Unit Study Program (CUSP I) September 5, 1960 - September 1962

(106 NSF Participants, 40 Participating compliments of the University, 446 Participating on an individual basis.)

The Cooperative Unit Study Program, inaugurated during the academic year 1960 - 1961, is an experimental program conducted as an Extension Course. The program is primarily a correspondence course for those outside of the normal visitation range of Boston College, and a combination of correspondence course and direct supervision by visitation of the Boston College Cooperative Unit Study Program Staff in the case of reasonably local participants. This Institute course was especially developed to help the following types of teachers of mathematics:

1. those whose age hinders them from attending formal institutes
2. those who are capable of independent study
3. those whose background in mathematics is weak
4. those who have yet to be accepted at regular institutes.

The purpose of the program is to give as many teachers as possible some contact with contemporary mathematics. The course content consists of a set of 45 Units in modern mathematics (i.e. these Units cover topics on the Natural numbers, sets, relations, number systems, modulos, math structure, proof, logic, etc.) Each Unit (except the last 5 supplementary Units) comprises the following sections:

1. the history of the concept or method to be developed
2. the text portion on the particular concept or method
3. examples and illustrations of the text material
4. a summary of the history and the text
5. a problem section on the text for the participants.

In addition to those persons involved in the CUSP Program under National Science Foundation auspices there were many studying the program on a private basis. Included among these were some school systems which used the units to retrain their mathematics teachers in a school-sponsored in-service program. The program in this trial run took two years to complete since the material was being developed and devised on a week to week basis.

Statistics on the Cooperative Unit Study Program September 1960-September 1962

1. The total enrollment for the Institute was 592.

2. There were 415 schools represented.
3. There were 300 cities and towns represented.
4. There were 39 states represented as well as D.C., Caroline Islands, Puerto Rico, Bermuda and Canada.

Deductive Operations Programming Experiment I (DOPE) 1960 - 1961

This program, which was put into operation during the summer of 1960 by funds from the University and from the National Science Foundation, sponsored the construction of a logic machine designed to drill students in deductive reasoning. The machine or DOPE as it is called is so devised as to solve 160 categorical syllogisms. By the use of an IBM punch card system, DOPE can be instructed to give syllogistic conclusions together with their Euler Circle solution and to point out errors in reasoning. The machine's main value is as an aid to student drill thus allowing more class time for other concepts of logic which are sometimes neglected. Plans for perfecting DOPE are now in progress. One immediate change which will be effected will be the shrinking of DOPE to desk model size.

Summer Institute - June 26 to August 4, 1961

(65 NSF Participants, 40 Tuition Students, and 38 University Guests)

The 1961 Summer Institute in Mathematics consisted of two sequences for teachers of mathematics, grades 7 - 12. The teachers awarded National Science Foundation grants were mathematics teachers with at least three years of teaching experience. They were average in ability and the majority of teachers in the beginning sequence had had little or no experience with the modern mathematics. The participants in the second sequence had attended a previous Boston College Institute or Institutes. The principal objectives for the Institute as a whole were to

1. furnish the teacher with fundamental courses in algebra, geometry, and analysis which would strengthen and increase his mathematical background.
2. provide the teacher with and instruct him directly from material which could be used as a classroom text.

Summer Institute Program June 26 to August 4, 1961

SEQUENCE 1.

Course 1. Mt. -NSF 1. (43 NSF Participants, 26 Tuitions, 38 University Guests)
Concepts of Elementary and Intermediate Algebra Treated from the Standpoint of Modern Algebra
Instructor: Stanley J. Bezuszka, S. J., Chairman
Department of Mathematics, Boston College.
This class used a demonstration group of 40 seventh and eighth grade students as part of the course work.

Course 2. Mt. -NSF 6. (43 NSF Participants, 28 Tuitions, 38 University Guests)
Introductory Modern Algebra
Instructor: Gerald G. Bilodeau, Assistant Professor
Department of Mathematics, Boston College.

Course 3. Mt-NSF 3 (43 NSF Participants, 26 Tuitions, 19 University Guests)
The Basic Concepts and Operations of Symbolic Logic
Instructor: Louis O. Kattsoff, Professor
Department of Mathematics, Boston College.

SEQUENCE 2.

Course 1. Mt. NSF-5 (22 NSF Participants, 4 Tuitions, 2 University Guests)
Intermediate Algebra with Elements of Plane and Analytic Geometry
Instructor: Margaret J. Kenney, Instructor, Department of Mathematics, Boston College.

Course 2. Mt-NSF 9 (22 NSF Participants, 2 Tuitions, 2 University Guests)
Modern Algebra II
Instructor: Jacqueline Criscenti, Assistant Professor, Department of Mathematics, Boston College.

Course 3. Mt-NSF 7 (22 NSF Participants, 1 Tuition, 1 University Guest)
Elements of Mathematical Analysis
Instructor: Joseph A. Sullivan, Professor, Department of Mathematics, Boston College.

Statistics for the Summer Institute 1961

1. The total enrollment for the Institute was 143.
2. There were 127 schools represented.
3. There were 108 cities and towns represented by the schools.
4. There were 21 states represented. In addition there were participants from Argentina, the District of Columbia, Jamaica, Nova Scotia, Puerto Rico and Quebec.

Academic Year Institute - September 18, 1961 to June 22, 1962

(41 NSF Participants, 1 Tuition Student)

Under the auspices of the National Science Foundation during 1961-1962, Boston College conducted an Academic Year Institute in Mathematics. The Institute was planned for junior and senior high school teachers of mathematics whose professional background in mathematics, whether light or extensive, was acquired some time ago. Specifically, it was planned for those teachers with relatively little or no acquaintance with contemporary mathematics. The major objectives were

a) to acquaint selected teachers with the proposed changes in the junior and senior high school mathematics curriculum.

b) to provide teachers with the knowledge of the mathematical material in the revised curriculum and the necessary background to understand and implement these changes. In addition, it was hoped that the mathematical background acquired in the Institute would enable the teacher to continue his study of mathematics in subsequent courses or by private study.

c) to provide a knowledge of physics using the concepts of contemporary mathematics since many teachers teach mathematics and physics concurrently.

Academic Year Institute Program - September 1961 to June 1962.

Semester 1. Course 1. Mt 215-NSF Elementary and Intermediate Algebra Treated from the Standpoint and Methodology of Modern Algebra

Instructor: Stanley J. Bezuszka, S. J., Chairman,
Department of Mathematics, Boston College.

Course 2. Mt 216-NSF Advanced Algebra from the Standpoint and

Methodology of Modern Algebra.

Instructor: Stanley J. Bezuszka, S. J.,

Course 3. Mt. 289-NSF Introduction to the Concepts and Operation of Symbolic (Mathematical) Logic

Instructor: Walter Feeney, S. J., Assistant Professor
Department of Mathematics, Boston College.

Course 4. Mt. 295-NSF Fundamentals of Mathematical Analysis and Analytic Geometry

Instructor: Jacqueline L. Criscenti, Assistant Professor
Department of Mathematics, Boston College.

Semester 2. Course 1. Mt. 141-NSF Vector Analysis

Instructor: Stanley J. Bezuszka, S. J.

Course 2 Mt. 231-NSF Elements of the Real Variable (with selected topics from the Complex Variable).

Instructor: Jacqueline Criscenti

Course 3. Mt. 233-NSF Modern Algebra

Instructor: Louis O. Kattsoff, Assistant Professor
Department of Mathematics, Boston College.

Course 4. Mt. 243-NSF Applications of Modern Mathematics to Modern Physics, Part 1.

Instructor: Stanley J. Bezuszka, S. J.

Summer Course 1. Mt. 152-NSF Probability and Statistical Inference

Instructor: Gerald G. Bilodeau, Assistant Professor
Department of Mathematics, Boston College.

Course 2. Mt. 244-NSF Applications of Modern Mathematics to Modern Physics, Part 2.

Instructor: Stanley J. Bezuszka, S. J.

Statistics for the Academic Year Institute 1961-1962

1. The total enrollment for the Institute was 42.
2. There were 40 schools represented (one was a T. V. teacher and the tuition student was a recent graduate who had no teaching experience.)

3. There were 41 cities and towns represented by the schools.
4. There were 24 states and South India represented.

In-Service Institute September 30, 1961 to June 9, 1962

(57 NSF Participants, 18 University Guests)

The National Science Foundation In-Service Institute 1961 - 1962 in Mathematics was a continuation of the previous In-Service Programs held in 1958 - 1959, 1959 - 1960, and 1960 - 1961 and consisted of one course Intermediate and Advanced Algebra Integrated with Plane and Analytic Geometry, Part 2. The texts: Sets, Operations and Patterns and Contemporary Progress in Mathematics (preliminary edition) were for the teachers to use directly as classroom texts. The Cooperative Unit Study Program, Course 1 was to be used as a foundation for those teachers who would begin using some one of the mathematics programs currently being publicized. The major objective for this Institute was to prepare the teacher to begin a modern mathematics program in his particular school. The format for the Institute was the same as that of previous in-service programs. A Demonstration Class and visiting lecturers were an integral part of the Institute. A supervised problem solving session with the teachers during the last 40 minutes of the class was introduced into the Institute program.

In-Service Institute Program September 30, 1961 to June 9, 1962

Course 1. Mt. NSF-10 Intermediate and Advanced Algebra Integrated with Plane and Analytic Geometry, Part 2.

Instructor: Stanley J. Bezuszka, S. J., Chairman
Department of Mathematics, Boston College.

Statistics for the In-Service Institute 1961 - 1962

1. The total enrollment for the Institute was 75.
2. There were 63 schools represented.
3. There were 46 cities and towns represented.
4. There were 2 states represented.

Cooperative Unit Study Program (CUSP 1) September 30, 1961 to September, 1962

(111 NSF participants)

The Cooperative Unit Study Program, Course 1 was conducted under the auspices of the National Science Foundation. The participants were sent the 40 problems and 5 supplementary units in two instalments. In this way, the participants were better able to plan their time and thus were in a position to complete problem units and required test in one year. During 1961-1962 several school systems and Massachusetts State Teacher Colleges used the Cooperative Unit Study Program with teachers in in-service programs and undergraduates preparing to become teachers. The Units were available as text material to individuals upon request.

Statistics on the Cooperative Unit Study Program September 1961 to September 1962

1. The total enrollment for the Institute was 111.
2. There were 108 schools represented.
3. There were 104 cities and towns represented.
4. There were 42 states and Puerto Rico represented.

Laboratory Equipment Program May 1, 1961 to September 1, 1962

The planning and construction of laboratory equipment was primarily for secondary school students and to a lesser extent for undergraduate college students. The equipment would assist the secondary school teacher in presenting the contemporary mathematics, in diminishing the routine correction of assignments, and in increasing the interest of the high school student. The equipment on the undergraduate level was designed to aid the student in individual study and to indicate various types and methods of mathematical proofs. Some of the machines completed during this project:

a) DOPE II- a new version of the logic machine designed to drill students involved in the study of categorical syllogisms. This was more compact and versatile than DOPE I.

b) simple binary indicators.

c) simple multiplication and addition tables adaptable to any base.

d) simple proof machines.

In addition, drawings and diagrams for other devices emphasizing other areas of mathematics were completed. A brochure will be published for the secondary school teacher describing the revised and perfected machines complete with blueprints and a detailed listing of parts and building costs.

Summer Institute June 25 to August 3, 1962

(68 NSF Participants, 49 Tuition Students, 29 University Guests)

This Summer Mathematics Institute in two sequences was the first part of a multi-term program terminating in the Non-research Master of Arts in Mathematics Degree for those teachers who would participate in the complete program. There were 3 parts to the multi-term program, each part consisting of a summer and in-service institute. Each summer was to consist of 2 sequences. Each sequence was to consist of 3 courses each worth 2 graduate credits. Each in-service institute would consist of 2 courses, each worth three graduate credits. A variety of courses were to be offered the participants in the sequential program. The principal objectives for the multi-term institutes were similar to those of earlier institutes. The courses in the institute were planned to increase and develop the professional competence of the teacher not only for direct teaching in the classroom but also for the direction of superior students in private study, extra-curricular projects, guidance and future careers in mathematics. In addition, the courses were designed to prepare the teachers so that they could return to their respective school systems and conduct system-wide in-service programs for their fellow teachers at the elementary and secondary level.

Summer Institute Program June 25 to August 3, 1962

SEQUENCE 1.

Course 1, 2 Mt. 215, 216-NSF (formerly Mt-NSF 1 and 5)

(43 NSF Participants, 44 Tuition Students, 25 University Guests)

Concepts of Elementary and Intermediate Algebra Treated from the Standpoint and Methodology of Modern Algebra with Elements of Plane and Analytic Geometry, (abbreviated to Sets, Operations and Patterns 1 and 2).

Instructor: Stanley J. Bezuszka, S. J., Chairman,
Department of Mathematics, Boston College

A Demonstration Class of 7th and 8th grade students was a formal part of this course.

Course 3 Mt. 233-NSF (formerly Mt-NSF 6)
(44 NSF Participants, 23 Tuition Students, 24 University Guests)
Modern Algebra
Instructor: Louis O. Kattsoff, Professor
Department of Mathematics, Boston College.

SEQUENCE 2.

Course 1 Mt. 216-NSF (formerly Mt-NSF 5)
(25 NSF Participants, 3 Tuition Students, 4 University Guests)
Intermediate Algebra with Elements of Plane and Analytic Geometry
Instructor: Margaret J. Kenney, Instructor
Department of Mathematics, Boston College

Course 2 Mt.234-NSF (formerly Mt-NSF 9)
(20 NSF Participants, 4 Tuition Students, 4 University Guests)
Modern Algebra 2
Instructor: Jacqueline Criscenti, Assistant Professor
Department of Mathematics, Boston College

Course 3. Mt.295-NSF (formerly Mt-NSF 7)
(23 NSF Participants, 2 Tuition Students, 4 University Guests)
Introductory Mathematical Analysis
Instructor: Joseph A. Sullivan, Professor
Department of Mathematics, Boston College.

Statistics for the Summer Institute 1962

1. The total enrollment for the Institute was 146.
2. There were 139 schools represented.
3. There were 108 cities and towns represented.
4. There were 28 states represented. In addition, there were participants from the District of Columbia, Jamaica and Mexico.

Academic Year Institute - September 17, 1962 - June 21, 1963

(43 NSF Participants, 1 Tuition Student)

Once again, Boston College in conjunction with the National Science Foundation conducted an Academic Year Institute for teachers of mathematics, grades 7 - 12. The Academic Year Institute is planned as an integrated unit for an immediate and effective modification of the mathematics curriculum in grades 7-12 of the secondary school program. The immediate phase of the program centers around the algebra courses where special texts have been developed to prepare the teacher to initiate the new programs in his classes. The effective phase of the Institute program has been designed to give the teacher a broader but not superficial background in mathematics, applications of mathematics to physical sciences and professional confidence to be gained through better understanding and knowledge. The courses offered in this Institute are somewhat modified and different from those of the preceding Academic Year programs. The schedule is adjusted each year after learning from experimentation with the preceding year's program.

Academic Year Institute Program September 1962 to June 1963

Semester 1	Course 1.	Mt. 215-NSF	Elementary and Intermediate Algebra Treated from the Standpoint and Methodology of Modern Algebra, Part 1.
		Instructor:	Stanley J. Bezuszka, S. J., Chairman Department of Mathematics, Boston College
	Course 2.	Mt. 216-NSF	Elements of Advanced Algebra Treated from the Standpoint and Methodology of Modern Algebra, Part 2.
		Instructor:	Stanley J. Bezuszka, S. J., Chairman Department of Mathematics, Boston College.
	Course 3.	Mt. 289-NSF	Introduction to the Concepts and Operations of Symbolic (Mathematical) Logic
		Instructor:	Albert A. Bennett Department of Mathematics, Boston College.
	Course 4.	Mt. 295-NSF	Fundamentals of Mathematical Analysis and Analytic Geometry, Part 1.
		Instructor:	Jacqueline Criscenti, Assistant Professor Department of Mathematics, Boston College.
Semester 2	Course 1	Mt. 141-NSF	Vector Analysis
		Instructor:	Stanley J. Bezuszka, S. J.

Course 2 Mt.231-NSF Mathematical Analysis, Elements of the Real Variable, Part 2.
Instructor: Jacqueline Criscenti

Course 3. Mt.233-NSF Modern Algebra
Instructor: Albert A. Bennett

Course 4. Mt. 243-NSF Applications of Modern Mathematics to Modern Physics, Part 1.
Instructor: Stanley J. Bezuszka, S. J.

Summer Course 1 Mt. 152-NSF Probability and Statistical Inference
Instructor: Margaret J. Kenney, Instructor
Department of Mathematics, Boston College.

Course 2. Mt. 244-NSF Applications of Modern Mathematics to Modern Physics, Part 2.
Instructor: Stanley J. Bezuszka, S. J.

Statistics for the Academic Year Institute 1962 - 1963

1. The total enrollment for the Institute was 44.
2. There were 42 schools represented. (the tuition student was a recent graduate with no teaching experience and the other a foreign student from Tanganyika).
3. There were 42 cities and towns represented by the schools
4. There were 28 states, the Philippines and Tanganyika represented.

In-Service Institute September 29, 1962 to June, 1963.

(60 NSF Participants, 10 Tuition Students, 4 University Guests).

The In-Service Institute 1962-1963 was the second part of a multi-term program terminating in the Non-research Master of Arts in Mathematics Degree for those teachers who would participate in the complete program. Thus, the In-Service Institute was the second institute for those who had attended the Summer Institute 1962. Alone, the National Science Foundation sponsored In-Service Institute was the first of a series of three related in-service programs. In addition to the overall objective of preparing secondary teachers in contemporary mathematics, the primary objective for this particular

Institute was to bridge the widening gap between contemporary mathematics and contemporary physics. Thus Physics would be offered with the viewpoint and terminology of modern mathematics.

In-Service Institute Program September 29, 1962 to June 2, 1963

Course 1. Mt.-NSF 241 Applications of the Concepts and Methodology of Modern Mathematics to the Problems of Modern Physics, Part 1.

Instructor: Stanley J. Bezuszka, S. J., Chairman
Department of Mathematics, Boston College.

A problem solving session of five groups under the direction of the instructor and course assistants was an essential part of the program.

Course 2. Assigned readings and discussions in the area of contemporary mathematics.

Statistics for the In-Service Institute 1962 - 1963.

1. The total enrollment for the Institute was 74.
2. There were 63 schools represented.
3. There were 46 cities and towns represented by the schools
4. There were 2 states represented by NSF participants. Tuition students included teachers from Tanganyika, India, Philippines and California, as well as Massachusetts.

Cooperative Unit Study Program (CUSP 1 and CUSP 2) September 1962- 1965

(CUSP 1 - 204 Tuition Students) (CUSP 2 - 85 NSF participants, 1 Tuition Student).

The Cooperative Unit Study Program, Course 1 was offered during 1962 - 1963 on a strictly tuition basis. After a two year pilot experiment under sponsorship of the National Science Foundation, the course had been completed and was offered on an extension basis as an upper division undergraduate mathematics course under University direction. The participants in the program were for the most part teachers who had had little experience with the modern mathematics and who anticipated they would be presently teaching one of the new programs. The general consensus was that the correspondence course was effective and that given the opportunity, the students would elect to take follow-up courses. Most of the class completed the course requirements successfully by September 1963. The formal title of the course was Mt. 121 Cooperative Unit Study Program, Course 1. The Cooperative Unit Study Program, Course 2 was offered on an experimental basis under government sponsorship. Progress in this course was slower since the material was being written, devised and completed concurrently with the experimentation. It was expected and realized that this course with this particular group would not be completed before June 1965. Course 2 also consisted of 40 text units in contemporary mathematics with 5 supplementary units. The topics covered here include the mathematical systems of the integers, rational and real numbers, the study of equations and special mathematical structures.

Statistics on the Cooperative Unit Study Program September 1962 - 1965

CUSP 1.

1. The total enrollment for the Institute was 204.
2. There were 160 schools represented (and 1 publishing company, the remainder were non-teachers).
3. There were 142 cities and towns represented by the schools.
4. There were 34 states, the District of Columbia, Puerto Rico (overseas schools in Germany, Japan, and Lebanon).

CUSP 2.

1. The total enrollment for the Institute was 86.
2. There were 85 schools represented.
3. There were 78 cities and towns represented by the schools.
4. There were 32 states, the District of Columbia, Jamaica and Puerto Rico represented.

Laboratory Equipment Program September 1962 - September 1963.

This program was a continuation of the previous laboratory projects whose major objectives were to plan, develop, and construct machines that would be an integral part of the contemporary mathematics program in the secondary school. Several existing machines were refined and improved upon, others which had been in the diagram stage were built, and new ideas were investigated and tested for future development. The devices that were completed as part of this program were:

a) DOPE III - a refinement and abbreviation of the earlier DOPE I and DOPE II. The machine was complete in one unit and could give results not possible on the earlier versions.

b) SLO - this machine was an initial attempt to construct mechanical equipment which would perform successfully the calculations of symbolic logic. Truth tables involving as many as 4 variables in various combinations with the logical connectives can be tested for validity.

c) POR - this particular machine was perhaps somewhat sophisticated for the average student of contemporary mathematics. POR was able to determine the properties peculiar to a given set of ordered pairs or relation. The properties of relations device could save the student much drudgery and involved procedures.

d) Number Base Comparator - this apparatus was designed to help the student of modern mathematics test his knowledge of writing numbers in different bases (from 2 - 10). The student dials in the number in the desired base and compares it with the number in the given base. If the needle in the indicator is in the correct position, the student's work is correct.

Summer Institute June 24 to August 2, 1963

(63 NSF Participants, 53 Tuition Students, 32 University Guests)

The 1963 Summer Institute was the second summer institute and the third institute in a multi-term program of institutes designed to provide part time students with the opportunity to earn the Non-research Master of Arts Degree in Mathematics. Local teachers attended both summer and in-service segments of the program, while teachers from other states followed a program based on summer institutes alone. A heavier burden was placed on this latter group in their summer studies since these teachers had to acquire 24 graduate credits in three summers. Actually a total of twenty-four students in attendance at the first institute of the multi-term program earned the degree. However, just ten of these qualified for the degree by attending classes only during the summer portions of the series.

Summer Institute Program June 24 to August 2, 1963

SEQUENCE 1.

Course 1 Mt. 215-NSF

(31 NSF Participants, 32 Tuition Students, 23 University Guests)

Elementary Algebra Treated from the Standpoint and Methodology of Modern Algebra

Instructor: Stanley J. Bezuszka, S. J., Chairman
Department of Mathematics, Boston College

A Demonstration Class of 7th and 8th grade students was a formal part of this course.

Course 2 Mt. 216-NSF

(31 NSF Participants, 32 Tuition Students, 23 University Guests)

Intermediate Algebra Treated from the Standpoint and Methodology of Modern Algebra

Instructor: Margaret J. Kenney, Instructor
Department of Mathematics, Boston College

Course 3 Mt. 233-NSF

(32 NSF Participants, 23 Tuition Students, 23 University Guests)

Modern Algebra

Instructor: Louis O. Kattsoff, Professor
Department of Mathematics, Boston College

SEQUENCE 2.

Course 1 Mt. 217-NSF

(32 NSF Participants, 19 Tuition Students, 8 University Guests)

Advanced Algebra Treated from the Standpoint and Methodology of Modern Algebra

Instructor: Stanley J. Bezuszka, S. J

Course 2 Mt. 234-NSF

(32 NSF Participants, 19 Tuition Students, 8 University Guests)

Symbolic Logic

Instructor: Mary E. Farrey, Instructor
Mathematics Institute, Boston College

Course 3 Mt. 295-NSF

(31 NSF Participants, 20 Tuition Students, 8 University Guests)

Mathematical Analysis I

Instructor: Joseph Sullivan, Associate Chairman,
Department of Mathematics, Boston College

Statistics for the Summer Institute 1963

1. The total enrollment for the Institute was 148.
2. There were 144 schools represented.
3. There were 117 cities and towns represented by the schools.
4. There were 26 states represented. In addition, there were participants from Canada and the District of Columbia.

Academic Year Institute - September 16, 1963 - June 19, 1964

(40 NSF Participants, 1 Tuition Student)

In order to keep up with the ever-changing trends in mathematics education, the objectives for this academic year institute were more detailed. The objectives were divided into two categories: for the participant as a classroom teacher and for the participant as a teacher of teachers. In the first category the goals indicated were similar to those of earlier programs. However, we now felt that the participant had a broader responsibility as a result of his study opportunity than the mere acquisition of personal competence in the field of mathematics. Specifically, we were convinced that the participant should be prepared to return to a school system and share his experience and information with other teachers through in-service courses. Thus the second category listed some aims we hoped to achieve in this respect. Two of the courses in the list below, together with some text materials, were planned to help the teachers become leaders and instructors of school sponsored courses.

Academic Year Institute Program September 1963 to June 1964

Semester 1

Course 1. Mt. 215-NSF Elementary and Intermediate Algebra Treated from the Standpoint and Methodology of Modern Algebra, Part 1.
Instructor: Stanley J. Bezuszka, S. J. , Chairman
Department of Mathematics, Boston College

Course 2. Mt. 216-NSF Elements of Advanced Algebra Treated from the Standpoint and Methodology of Modern Algebra, Part 2
Instructor: Stanley J. Bezuszka, S. J.

Course 3. Mt. 289-NSF Introduction to Symbolic (Mathematical) Logic
Instructor: Albert A. Bennett, Visiting Professor
Department of Mathematics, Boston College

Course 4. Mt. 295-NSF Mathematical Analysis I
Instructor: Jacqueline Criscenti, Assistant Professor
Department of Mathematics, Boston College

Semester 2 Course 1. Mt. 233-NSF Modern Algebra
Instructor: Albert A. Bennett
Course 2. Mt. 231-NSF Mathematical Analysis II
Instructor: Jacqueline Criscenti
Course 3. Mt. 141-NSF Vector Analysis
Instructor: Stanley J. Bezuszka, S. J.
Course 4. Mt. 243-NSF Applications of Modern Mathematics to the Concepts of Modern Physics, Part I
Instructor: John Power, Assistant Professor
Physics Department, Boston College

Summer Course 1 Mt. 152-NSF Probability and Statistical Inference
Instructor: Gerald Bilodeau, Assistant Professor
Department of Mathematics, Boston College
Course 2 Mt 244-NSF Applications of Modern Mathematics to the Concepts of Modern Physics, Part II
Instructor: Stanley J. Bezuszka, S. J.

Statistics for the Academic Year Institute 1963-1964

1. The total enrollment for the Institute was 41.
2. There were 40 schools represented. (One participant was not teaching)
3. There were 40 cities and towns represented by the schools.
4. There were 22 states, Japan and the Philippines represented.

In-Service Institute - September 28, 1963 to May 30, 1964

(60 NSF Participants, 4 Tuition Students, 3 University Guests)

The In-Service Institute 1963-1964 was the second in-service institute and the fourth institute in the multi-term program of institutes sponsored by the National Science Foundation. Thus, the course offered in this institute differed from those given in the previous segments of the series. It was our original intention to give a second course in the applications of mathematics to physics as an extension of the content of the 1962-1963 In-Service Institute. However, participant reaction to this proposal was not favorable and so a compromise course was chosen. We decided on a course in vector analysis which would stress both geometry and analysis and at the same time allow for applications to physics. The teachers found this course challenging and practical since many of the newer secondary school geometry texts include a treatment of vectors.

In-Service Institute Program September 28, 1963 to May 30, 1964

Course 1 Mt. 141-142-NSF Vector Analysis

Instructor: Stanley J. Bezuszka, S. J., Chairman
Department of Mathematics, Boston College

A problem solving session in which the class was separated in small groups was an integral part of the program.

Course 2 Assigned readings and discussions in the area of contemporary mathematics.

Statistics for the In-Service Institute 1963-1964

1. The total enrollment for the Institute was 67.
2. There were 60 schools represented.
3. There were 38 towns represented by the schools.
4. There were 2 states represented.

Cooperative Unit Study Program(CUSP 1 and CUSP 2) September 1963-June, 1964

(CUSP 1 - 64 Tuition Students) (CUSP 2 - 47 Tuition Students)

The Cooperative Unit Study Program, Courses 1 and 2, were offered during 1963-1964 on a strictly tuition basis. These extension courses are given in conjunction with the Evening College of Arts and Sciences. The courses had been initiated originally to help solve a temporary problem. This was to provide assistance to those teachers who were waiting to attend some type of sponsored institute. With each succeeding year, more and more interested teachers have been given the opportunity to actively participate in institute programs. Furthermore, since many of the State colleges and teacher training institutions now offer undergraduates contemporary courses in mathematics, the need for this type of correspondence course may be diminishing. There are still some older teachers in remote sections of the country for whom such a course has appeal and who must be reached. The text materials for these courses are still used to a considerable extent for in-service courses conducted by former Boston College institute students.

Statistics for the Cooperative Unit Study Program September 1963 to June 1964

CUSP 1

1. The total enrollment for the Institute was 64.
2. There were 57 schools represented.

3. There were 56 cities and towns represented by the schools.
4. There were 24 states and Canada represented.

CUSP 2

1. The total enrollment for the Institute was 47.
2. There were 41 schools represented.
3. There were 40 cities and towns represented by the schools.
4. There were 22 states and the Philippines represented.

Summer Institute - June 29 to August 7, 1964

(72 NSF Participants, 72 Tuition Students, 25 University Guests)

The 1964 Summer Institute was the third summer institute and the fifth institute in the multi-term program of institutes designed to provide the teacher participant with the opportunity to increase subject matter proficiency and at the same time pursue studies leading towards the Non-research Master of Arts Degree in Mathematics. In each summer program there were two sequences structured in the following way. The first sequence always consisted of new participants while the second sequence comprised those participants who were returnees for a second or third summer of study. Although the program of courses was completed by some participants in this group in 1964, there were still participants at beginning and intermediate stages of involvement. The out-of-state participants who were active in the degree program and who had performed successfully in three summer institutes were eligible to take comprehensive examinations at the close of this Institute.

Summer Institute Program June 29 to August 7, 1964

SEQUENCE 1.

Course 1. Mt. 215-NSF

(33 NSF Participants, 32 Tuition Students, 18 University Guests)

Elementary Algebra Treated from the Standpoint and Methodology of Modern Algebra

Instructor: Stanley J. Bezuszka, S. J., Chairman
Department of Mathematics, Boston College

A demonstration class was a formal part of the Institute program. However, this was the last demonstration class that operated in conjunction with summer institutes. The class was phased out because it had served its purpose.

Course 2. Mt. 216-NSF

(33 NSF Participants, 32 Tuition Students, 18 University Guests)

Intermediate Algebra Treated from the Standpoint and Methodology of Modern Algebra
Instructor: Mary E. Farrey, Instructor
Mathematics Institute, Boston College

Course 3. Mt. 233-NSF
(33 NSF Participants, 20 Tuition Students, 13 University Guests)
Modern Algebra
Instructor: Louis O. Kattsoff, Professor
Department of Mathematics, Boston College

SEQUENCE 2.

Course 1. Mt. 151-NSF
(39 NSF Participants, 38 Tuition Students, 5 University Guests)
Probability
Instructor: Margaret J. Kenney, Instructor
Department of Mathematics, Boston College

Course 2. Mt. 295-NSF
(15 NSF Participants, 17 Tuition Students, 6 University Guests)
Analysis I
Instructor: Stanley J. Bezuszka, S. J., Chairman
Department of Mathematics, Boston College

Course 3. Mt 231-NSF
(24 NSF Participants, 21 Tuition Students, 5 University Guests)
Analysis II
Instructor: Gerald Bilodeau, Professor
Department of Mathematics, Boston College

Statistics for the Summer Institute 1964

1. The total enrollment for the Institute was 169.
2. There were 145 schools represented.
3. There were 141 cities and towns represented by the schools.
4. There were 30 states represented, plus Washington, D. C, Canada, Germany, Ghana, India, Ireland, Puerto Rico and the West Indies.

Academic Year Institute - September 14, 1964 to June 25, 1965

(28 NSF Participants, 1 Tuition Student)

The course program for the 1964-1965 Academic Year Institute varied somewhat from the offerings of the past three years. The applications of mathematics to physics was reduced to a one-semester course while the probability and statistical inference was expanded to cover two semesters. This change was effected as a result of consultations with former participants on the practicality of the courses and on the increased emphasis given to statistics as a course for the secondary level. More stress was placed on preparing and encouraging the teacher participants to become leaders of in-service groups, curriculum coordinators, and consultants. As in the case of other institutes, much can be accomplished outside of formal class situations. Seminars led by visiting foreign lecturers were an interesting and worthwhile part of each institute program.

Academic Year Institute Program September 1964 to June 1965

Semester 1	Course 1.	Mt. 215-NSF	Elementary and Intermediate Algebra Treated from the Standpoint and Methodology of Modern Algebra, Part 1.
		Instructor:	Stanley J. Bezuszka, S. J., Chairman Department of Mathematics, Boston College
	Course 2.	Mt. 216-NSF	Elements of Advanced Algebra Treated from the Standpoint and Methodology of Modern Algebra, Part 2.
		Instructor:	Stanley J. Bezuszka, S. J.
	Course 3.	Mt. 289-NSF	Introduction to Symbolic (Mathematical) Logic
		Instructor:	Albert A. Bennett, Visiting Professor Department of Mathematics, Boston College
	Course 4.	Mt. 295-NSF	Mathematical Analysis I
		Instructor:	Jacqueline Criscenti, Assistant Professor Department of Mathematics, Boston College.
Semester 2	Course 1.	Mt. 233-NSF	Modern Algebra
		Instructor;	Albert. A. Bennett
	Course 2.	Mt. 231-NSF	Mathematical Analysis II
		Instructor:	Jacqueline Criscenti
	Course 3.	Mt. 151-NSF	Probability
		Instructor:	Fred Wolock, Assistant Professor College of Business Administration, Boston College
	Course 4.	Mt. 243-NSF	Applications of Modern Mathematics to the Concepts of Modern Physics
		Instructor:	John Power, Assistant Professor Physics Department, Boston College

Summer	Course 1	Mt. 141-NSF	Vector Analysis
		Instructor:	Stanley J. Bezuszka, S. J.
	Course 2	Mt. 152-NSF	Statistical Inference
		Instructor:	Fred Wolock

Statistics for the Academic Year Institute 1964-1965

1. The total enrollment for the Institute was 29.
2. There were 28 schools represented.
3. There were 27 cities and towns represented by the schools.
4. There were 21 states represented.

In-Service Institute - October 3, 1964 to June 5, 1965

(60 NSF Participants, 3 Tuition Students, 7 University Guests)

The In-Service Institute was the concluding segment of the multi-term program of six institutes operated in cooperation with the National Science Foundation. There were some participants who would complete their studies with the termination of this institute, but the majority of participants were either midstream in or just beginning the degree program. This was possible since the in-service and summer institutes were so coordinated that the courses would not overlap and therefore an individual could begin his graduate studies in any given in-service program or any summer institute. The instructors who were involved in both summer and in-service programs felt that the participants derived more from the six-week period of concentrated study than from the weekly in-service study. Many teachers allowed outside activities and responsibilities to interfere with their progress in the in-service courses.

A number of teachers found this particular course quite helpful as they were soon to begin teaching some elements of calculus to their secondary school students.

In-Service Institute Program October 3, 1964 to June 5, 1965

Course 1 Mt. 161-162-NSF Calculus and the Physical Applications of Calculus

Instructor: Stanley J. Bezuszka, S. J., Chairman
Department of Mathematics, Boston College

A problem solving session in which the class was separated into small groups was an integral part of the program.

Course 2 Assigned readings and discussions in the area of contemporary mathematics.

Statistics for the In-Service Institute 1964-1965

1. The total enrollment for the Institute was 70.
2. There were 62 schools represented.
3. There were 45 cities and towns represented by the schools.
4. There were 3 states represented.

Cooperative Unit Study Program (CUSP 1 and CUSP 2) September 1964 - June 1965

(CUSP 1 - 45 Tuition Students) (CUSP 2 - 12 Tuition Students)

The Cooperative Unit Study Program, Courses 1 and 2, were continued. However, since the course was not publicized to any extent, the program participants were individuals who had made personal inquiries. Since this program is no longer operating under the National Science Foundation, the courses do not receive publicity except indirectly by means of former participants. The majority of the students who enroll in the course and work systematically do complete the requirements, and receive the credits. Some people, however, require the motivation and formality of a classroom situation in order to study effectively. Generally, this type is unsuccessful with correspondence work.

Statistics on the Cooperative Unit Study Program, September 1964 - June 1965

CUSP 1

1. The total enrollment for the Institute was 45.
2. There were 43 schools represented.
3. There were 40 cities and towns represented by the schools.
4. There were 18 states, Canada, the Philippines and Puerto Rico represented.

CUSP 2

1. The total enrollment was 12.
2. There were 12 schools represented.
3. There were 11 cities and towns represented by the schools.
4. There were 8 states represented.

Summer Institute - June 28 to August 6, 1965

(62 NSF Participants, 54 Tuition Students, 21 University Guests)

The 1965 Summer Institute was composed of the same format as the summer institutes of the preceding three summers. There were two tracks of courses, one for beginners and one for returnees. The participants were in class from 9:00 a. m. until 12:00 noon and from 1:00 p. m. until 2:15 p. m. daily. Over and above these formal class meetings which consisted of a mixture of lectures and problem solving, the course assistants conducted afternoon tutorials and help sessions. No evening seminars were scheduled for the participants. However, several of the students who resided in the dormitories studied together as a group in the evenings.

Three class socials were organized at equally spaced intervals in the six week period. Participants who had free time were welcome to avail themselves of the social activities planned for the entire summer session.

Summer Institute Program June 28 to August 6, 1965

SEQUENCE 1.

Course 1 Mt. 216-NSF

(29 NSF Participants, 30 Tuition Students, 9 University Guests)

Elementary and Intermediate Algebra Treated from the Standpoint and Methodology of Modern Algebra, Part 1

Instructors: Stanley J. Bezuszka, S. J., Chairman
Department of Mathematics, Boston College

Margaret J. Kenney, Instructor
Department of Mathematics, Boston College

Course 2 Mt. 217-NSF

(29 NSF Participants, 30 Tuition Students, 9 University Guests)

Elementary and Intermediate Algebra Treated from the Standpoint and Methodology of Modern Algebra, Part 2

Instructors: Stanely J. Bezuszka, S. J.
Margaret J. Kenney

Course 3 Mt. 295-NSF

(48 NSF Participants, 30 Tuition Students, 11 University Guests)

Mathematical Analysis I

Instructor: John Riley, Chairman
Department of Mathematics, Lowell Technological Institute
Lowell, Massachusetts

SEQUENCE 2

Course 1 Mt 217-NSF

(33 NSF Participants, 19 Tuition Students, 5 University Guests)

Elementary and Intermediate Algebra Treated from the Standpoint and Methodology of Modern Algebra, Part 2

Instructor: Mary E. Farrey, Instructor
Mathematics Institute, Boston College

Course 2 Mt. 289-NSF
(33 NSF Participants, 16 Tuition Students, 6 University Guests)
Symbolic Logic
Instructor: Louis O. Kattsoff, Professor
Department of Mathematics, Boston College

Course 3 Mt 231-NSF
(14 NSF Participants, 11 Tuition Students, 1 University Guest)
Mathematical Analysis II
Instructor: Joseph Sullivan, Associate Chairman
Department of Mathematics, Boston College

Statistics for the Summer Institute 1965

1. The total enrollment for the Institute was 137.
2. There were 128 schools represented.
3. There were 125 cities and towns represented by the schools.
4. There were 27 states, Bermuda, Canada, Ireland, Puerto Rico, Thailand, Washington, D. C., and the West Indies represented.

Academic Year Institute - September 13, 1965 to June 24, 1966

(30 NSF Participants, 13 Tuition Students)

The course program for the 1965-1966 Academic Year Institute was altered in the light of a new objective for the Institute. The purpose of this Institute was to improve the subject matter competency of the teacher, to prepare the teacher to become a teacher of teachers, and to introduce the teacher to computers as related to secondary school mathematics. This latter goal was achieved by means of a formal course in computer programming and applications and by some informal discussions between the participants and the institute director. The stress placed on computers in industry and the need for computers to further scientific and technological research will ultimately affect the secondary school curriculum. It is not too early for the secondary school teacher to begin a study of how computer programming can be used effectively in the mathematics classroom. Generally, the computer course was considered worthwhile by the participants and the decision was made to keep this course as one of the ten featured in the degree program.

Academic Year Institute Program September 1965 to June 1966

Semester 1	Course 1	Mt 215-NSF	Elementary and Intermediate Algebra Treated from the Standpoint and Methodology of Modern Algebra	Instructor: Stanley J. Bezuszka, S. J., Chairman Department of Mathematics, Boston College
	Course 2	Mt. 289-NSF	Introduction to Symbolic (Mathematical) Logic	Instructor: Albert A. Bennett, Visiting Professor Department of Mathematics, Boston College
	Course 3.	Mt. 295-NSF	Mathematical Analysis I	Instructor: Gerald Bilodeau, Associate Professor, Department of Mathematics, Boston College
	Course 4	Mt. 247-NSF	Computer Oriented Mathematics: Programming and Applications	Instructor: Mary E. Farrey, Instructor Mathematics Institute, Boston College
Semester 2	Course 1	Mt. 233-NSF	Modern Algebra	Instructor: Albert A. Bennett
	Course 2	Mt. 231-NSF	Mathematical Analysis II	Instructor: Gerald Bilodeau
	Course 3	Mt. 151-NSF	Probability	Instructor: Fred Wolock, Assistant Professor College of Business Administration, Boston College
	Course 4	Mt. 141-NSF	Vector Analysis	Instructor: Stanley J. Bezuszka, S. J.
Summer	Course 1	Mt. 152-NSF	Statistical Inference	Instructor: Fred Wolock
	Course 2	Mt. 243-NSF	Applications of Modern Mathematics to the Concepts of Modern Physics	Instructor: Stanley J. Bezuszka, S. J.

Statistics for the Academic Year Institute 1965-1966

1. The total enrollment for the Institute was 43.
2. There were 40 schools represented.
3. There were 40 cities and towns represented by the schools.
4. There were 21 states, Canada, Germany (APO) and the Philippines represented.

In-Service Institute - September 25, 1965 to May 21, 1966

(60 NSF Participants, 9 Tuition Students, 11 University Guests)

The 1965-1966 In-Service Institute was the first institute in a multi-term series of in-service institutes. The specific objective for this Institute was to consider the problems of teaching geometry in the secondary school. Since the various national groups first began programs of reform in the high school mathematics curriculum, there has been concern for the proper course to take with regard to geometry. Many approaches have been suggested, tried, and rejected. In fact, the problem is still not settled, as many teachers are dissatisfied with the most recent recommendations of the curriculum groups and publishers. This Institute had the specific objective of reviewing the Thirteen Books of Euclid in the light of modern considerations. The participants were required to present papers summarizing research performed in the journals at their particular level of secondary teaching. Although the Institute did not by any means resolve the problem of what to teach and what not to teach in secondary school geometry, many of the teachers did develop new attitudes and an appreciation for the subject.

In-Service Institute Program September 25, 1965 to May 21, 1966

Course: Mt. 251-252-NSF Euclidean Plane Geometry and Analytic Geometry

Instructor: Stanley J. Bezuszka, S. J., Chairman
Department of Mathematics, Boston College

A problem solving session in which the class was divided into small groups was an integral part of the program.

Statistics for the In-Service Institute 1965-1966

1. The total enrollment for the Institute was 80.
2. There were 66 schools represented.
3. There were 54 cities and towns represented by the schools.
4. There were 4 states represented.

Cooperative Unit Study Program (CUSP 1 and CUSP 2) September 1965-June 1966

(CUSP 1 - 38 Tuition Students) (CUSP 2 - 7 Tuition Students)

Both Courses Mt. 121 and Mt. 122 continued to be offered on a limited basis without advertising. The text for Mt. 121 Cooperative Unit Study Program, Course 1 became available in a revised edition. Each unit was revised at least in part, while several units were completely altered. A new set of exercises and examples was included with each unit. The text was widely used with both teachers and future teachers. Many teachers who purchase the text and yet who are not enrolled in the course correspond with the Institute concerning problems that occur in their teaching of contemporary mathematics.

Statistics on the Cooperative Unit Study Program, September 1965- June 1966

CUSP 1

1. The total enrollment for the Institute was 38.
2. There were 21 schools represented.
3. There were 21 cities and towns represented by the schools.
4. There were 15 states, Saudi Arabia, and Spain (AS) represented.

CUSP 2

1. The total enrollment for the Institute was 7.
2. There were 6 schools represented.
3. There were 6 cities and towns represented by the schools.
4. There were 6 states represented.

Summer Institute - June 27 to August 5, 1966

(61 NSF Participants, 49 Tuition Students, 5 University Guests)

The 1966 Summer Institute was the first in a new series of a multi-term program of summer institutes. A participant entering Sequence 1 in 1966 could in three summers earn twenty-four of the required thirty graduate credits in the Non-research Master's Program. There were sixty-two teacher participants who initiated studies in the Summer of 1966. Twenty-seven of these have completed at least twenty-four credits and are considered active candidates for the degree. In fact, three of this group have completed all requirements and have consequently received the degree.

Since this is a national program of institutes, the greater proportion of students are not Massachusetts residents. Thus, these teachers, after first obtaining approval from the director, must earn the remaining six credits by electing a strictly graduate non-institute course in mathematics at some institution near their home. The only other alternative is to transfer credits from an approved course listed amongst the regular departmental offering of the Summer School at Boston College. This is allowable only under the condition that the grade earned is B or better.

Summer Institute Program June 27 to August 5, 1966

SEQUENCE 1.

Course 1 Mt. 216-NSF
(34 NSF Participants, 28 Tuition Students, 5 University Guests)
Elementary and Intermediate Algebra Treated from the Standpoint and Methodology of Modern Algebra, Part 1
Instructors: Stanley J. Bezuszka, S. J. Chairman,
Department of Mathematics, Boston College

Margaret J. Kenney, Instructor
Department of Mathematics, Boston College

Course 2 Mt 217-NSF
(34 NSF Participants, 28 Tuition Students, 5 University Guests)
Elementary and Intermediate Algebra Treated from the Standpoint and Methodology of Modern Algebra, Part 2
Instructors: Stanley J. Bezuszka, S. J.

Margaret J. Kenney

Course 3 Mt. 295-NSF
(37 NSF Participants, 20 Tuition Students, 2 University Guests)
Mathematical Analysis I
Instructor: Gerald Bilodeau, Associate Professor
Department of Mathematics, Boston College

SEQUENCE 2.

Course 1 Mt. 233-NSF
(26 NSF Participants, 11 Tuition Students)
Modern Algebra
Instructor: Jacqueline Criscenti, Assistant Professor
Department of Mathematics, Boston College

Course 2 Mt. 289-NSF
(27 NSF Participants, 14 Tuition Students, 1 University Guest)
Symbolic Logic
Instructor: Mary E. Farrey, Instructor
Mathematics Institute, Boston College

Course 3 Mt. 231-NSF
(18 NSF Participants, 10 Tuition Students)
Mathematical Analysis II

Instructor: John Riley, Chairman
Department of Mathematics, Lowell Technological Institute
Lowell, Massachusetts

Statistics for the Summer Institute 1966

1. The total enrollment for the Institute was 115.
2. There were 111 schools represented.
3. There were 100 cities and towns represented by the schools.
4. There were 24 states, Canada, Ceylon, Ireland, Newfoundland, Puerto Rico and the West Indies represented.

Academic Year Institute - September 19, 1966 to June 23, 1967

(25 NSF Participants, 11 Tuition Students)

A new course was added to the list planned for the participants enrolled in the 1966-1967 Academic Year Institute. This course, entitled 'Seminar', was included to place more emphasis on the major paper, one of the requisites for the degree. Since the degree was established for the participants in the 1959-1960 academic year program, the completion of a major paper was an essential feature in the list of requisites. This paper was expected to be a scholarly presentation of some mathematical topic chosen by the participant with the consent of the director. The paper did not have to be of the caliber of a thesis but the participant was expected to do some limited research and exhibit some originality of approach. A number of the papers which have been submitted would certainly qualify as thesis material. The main purpose of the paper was to teach the student to pursue some topic independently and to encourage the student to make effective use of library facilities. The majority of papers which have been submitted recently are more sophisticated and polished than the earlier attempts. The Seminar was introduced to assist the participant in making a wise selection of a topic. Various problems in different areas of mathematics are discussed informally to stimulate the student to make an early decision. Many teacher participants have failed to qualify for the degree simply because they did not meet the major paper requirement. The student does not receive credit for the Seminar until the paper is approved. The Seminar course replaced the Applications of Mathematics to Physics. Many of the ideas developed in the latter course have been transferred to the course Vector Analysis.

Academic Year Institute Program September 1966 to June 1967

Semester 1.	Course 1.	Mt. 215-NSF	Elementary and Intermediate Algebra Treated from the Standpoint and Methodology of Modern Algebra
		Instructor:	Stanley J. Bezuszka, S. J., Chairman Department of Mathematics, Boston College
	Course 2.	Mt. 289-NSF	Introduction to Symbolic (Mathematical) Logic
		Instructor:	Albert A. Bennett, Visiting Professor Department of Mathematics, Boston College
	Course 3.	Mt. 295-NSF	Mathematical Analysis I
		Instructor:	Jacqueline Criscenti, Assistant Professor, Department of Mathematics, Boston College
	Course 4.	Mt. 247-NSF	Computer Oriented Mathematics: Programming and Applications
		Instructor:	Mary E. Farrey, Instructor Mathematics Institute, Boston College
Semester 2.	Course 1.	Mt. 233-NSF	Modern Algebra
		Instructor:	Albert A. Bennett
	Course 2.	Mt. 231-NSF	Mathematical Analysis II
		Instructor:	Jacqueline Criscenti
	Course 3.	Mt. 151-NSF	Probability
		Instructor:	William Perrault, Chairman, Department of Mathematics, State College at Boston
	Course 4.	Mt. 141-NSF	Vector Analysis
		Instructor:	Stanley J. Bezuszka, S. J.
	Course 5.	Mt. 221-NSF	Seminar
		Instructor:	Stanley J. Bezuszka, S. J.
Summer	Course 1	Mt. 152-NSF	Statistical Inference
		Instructor:	William Perrault

Statistics for the Academic Year Institute 1966-1967

1. The total enrollment for the Institute was 36.
2. There were 30 schools represented.
3. There were 30 cities and towns represented by the schools.
4. There were 17 states, Canada, Ceylon, Germany, Iraq, the Philippines and Syria represented.

In-Service Institute - October 8, 1966 to June 3, 1967

(61 NSF Participants, 7 Tuition Students, 2 University Guests)

The 1966-1967 In-Service Institute was the second institute in the multi-term program of in-service institutes. The course content of the in-service classes differed from the content of the summer institute courses. This was the first in-service institute to present two distinct courses. There was just one registration period for the class. Both classes met once for one and one half hours each for thirty Saturdays. One hour of each course was devoted to a lecture on content, while the two remaining half hours for each class were combined into one problem session. The class was divided by ability into three groups for the problem sessions, operated by the course assistants. The course instructors alternated between groups. Segments of both courses were directly applicable to the changing secondary curriculum. Several participants did have difficulty with the Linear Algebra. Whereas theorems and examples in two and three dimensions were clear and meaningful, consideration of n dimensions was a stumbling block. The Number Theory course was the more popular of the two since so many of the topics were immediately relevant to the secondary classes.

In-Service Institute Program October 8, 1966 to June 3, 1967

Course 1.	Mt. 271-NSF	Number Theory
	Instructor:	Stanley J. Bezuszka, S. J., Chairman Department of Mathematics, Boston College
Course 2.	Mt. 272-NSF	Linear Algebra
	Instructor:	Margaret J. Kenney, Instructor Department of Mathematics, Boston College

Statistics for the In-Service Institute 1966-1967

1. The total enrollment for the Institute was 70.
2. There were 62 schools represented.
3. There were 50 cities and towns represented by the schools.
4. There were 3 states represented.

Cooperative Unit Study Program (CUSP 1 and CUSP 2) September 1966-June 1967.

(CUSP 1 - 27 Tuition Students) (CUSP 2 - 7 Tuition Students)

By this time the emphasis has shifted from extension work on an individual basis (figures above) to group interaction under the leadership of a former institute participant. Such in-service classes are operated by various schemes. Some are operated for credit through Boston College. In this type of course, the individual participant pays tuition and is registered through the Evening College of Arts and Sciences. The group leader is reimbursed for his services by Boston College. The text materials are supplied by Boston College. In other circumstances, where the course offered is non-credit, the former participant who teaches the course is paid by the school department sponsoring the course. There have also been instances where the former participant has taught in-service classes under volunteer circumstances and for which no salary was offered.

Statistics on the Cooperative Unit Study Program 1966-1967

CUSP 1

1. The total enrollment for the Institute was 27.
2. There were 23 schools represented.
3. There were 22 cities and towns represented by the schools.
4. There were 11 states represented.

CUSP 2

1. The total enrollment for the Institute was 7.
2. There were 7 schools represented.
3. There were 7 cities and towns represented by the schools.
4. There were 6 states represented.

Summer Institute - June 26 to August 4, 1967

(66 NSF Participants, 46 Tuition Students, 4 University Guests)

The 1967 Summer Institute was the second in a series of sequential summer institutes. The participants in the program followed one of three possible programs of courses. The courses in the two advanced sequences were rotated in such a way that these participants took two of the three courses in common. The courses taught during the period of three summers were the same as those offered to the participants of one academic year institute with a single exception. The Seminar course was not available to summer students. It was the general consensus that these teachers required as much formal course preparation as could possibly be arranged for them. Actually, the summer students were at a disadvantage in comparison with the full time academic year student. The amount of material covered in a one-semester course during the year exceeds the amount of content treated in a summer course. However, all interested participants were informed about the procedure for preparing a major paper and each was given suggestions for acceptable topics. The director and associate director of the program were available for consultation about the selection and feasibility of topics.

Summer Institute Program June 26 to August 4, 1967

SEQUENCE 1.

Course 1 Mt. 216-NSF
(22 NSF Participants, 22 Tuition Students, 2 University Guests)
Elementary and Intermediate Algebra Treated from the Standpoint and Methodology of Modern Algebra, Part 1
Instructors: Stanley J. Bezuszka, S. J., Chairman
Department of Mathematics, Boston College

Margaret J. Kenney, Instructor
Department of Mathematics, Boston College

Course 2 Mt 217-NSF
(22 NSF Participants, 22 Tuition Students, 2 University Guests)
Elementary and Intermediate Algebra Treated from the Standpoint and Methodology of Modern Algebra, Part 2
Instructors: Stanley J. Bezuszka, S. J.

Margaret J. Kenney

Course 3 Mt. 295-NSF
(23 NSF Participants, 18 Tuition Students, 1 University Guest)
Mathematical Analysis I
Instructor: Mrs. Carole A. Lamb, Lecturer
Mathematics Institute, Boston College

SEQUENCE 2.

Course 1 Mt 147-NSF
(41 NSF Participants, 16 Tuition Students, 1 University Guest)
Introduction to Computer Programming
Instructor: Mary E. Farrey, Instructor
Mathematics Institute, Boston College

Course 2a Mt. 231-NSF
(27 NSF Participants, 10 Tuition Students)
Mathematical Analysis II
Instructor: Thomas Costello, Lecturer
Mathematics Institute, Boston College

Course 2b Mt. 141-NSF
(13 NSF Participants, 16 Tuition Students, 2 University Guests)
Vector Analysis
Instructor: Stanley J. Bezuszka, S. J.

Course 3 Mt. 152-NSF
(36 NSF Participants, 18 Tuition Students, 2 University Guests)
Probability and Statistical Inference
Instructor: Gerald G. Bilodeau, Associate Professor
Mathematics Department, Boston College

Statistics for the Summer Institute 1967

1. The total enrollment for the Institute was 116.
2. There were 113 schools represented.
3. There were 103 cities and towns represented by the schools.
4. There were 30 states, Canada, Honduras, Ireland, Jamaica and Puerto Rico represented.

Academic Year Institute - September 18, 1967 to June 21, 1968

(24 NSF Participants, 11 Tuition Students)

The primary objective for the 1967-1968 Academic Year Institute, as in earlier institutes, was to guide the teacher participant in his pursuit for excellence as a classroom teacher. In addition, each participant followed a program of courses designed to prepare him to become a teacher of teachers. Another objective was to encourage the teacher to promote the cause of computer oriented mathematics in regard to the updated secondary school mathematics curriculum. The list of courses offered to the participants of this institute were the same as those taught in 1966-1967. This particular program included those subject areas which were involved in the revision of secondary mathematics syllabi.

The fact that one course only was offered during the intersession was an improvement over former schedules. This arrangement allowed those teachers who expected to take the comprehensive examination at the end of June a sufficient interval in which to review the year's work. If an individual has done fairly well in course, then the comprehensive examination should not present too great a challenge. About 10% who take the examination in a given year fail to perform successfully.. Those who fail are given a second opportunity to take the examination. Thus if someone does not receive the degree, it is not because the comprehensive examination is a deterrent.

Academic Year Institute Program September 1967 to June 1968

Semester 1	Course 1	Mt. 215-NSF	Elementary and Intermediate Algebra Treated from the Standpoint and Methodology of Modern Algebra
		Instructor:	Stanley J. Bezuszka, S. J. , Associate Professor Department of Mathematics, Boston College
	Course 2	Mt. 289-NSF	Introduction to Symbolic (Mathematical) Logic
		Instructor:	Albert A. Bennett, Visiting Professor Department of Mathematics, Boston College
	Course 3	Mt. 295-NSF	Mathematical Analysis I
		Instructor:	Jacqueline Criscenti, Assistant Professor Department of Mathematics, Boston College
	Course 4	Mt. 247-NSF	Computer Oriented Mathematics: Programming and Applications
		Instructor:	Mary E. Farrey, Instructor Mathematics Institute, Boston College
Semester 2	Course 1	Mt. 233-NSF	Modern Algebra
		Instructor:	Albert A. Bennett
	Course 2	Mt. 231-NSF	Mathematical Analysis II
		Instructor:	Jacqueline Criscenti
	Course 3	Mt. 151-NSF	Probability
		Instructor:	William Perrault, Chairman Department of Mathematics, State College at Boston
	Course 4	Mt. 141-NSF	Vector Analysis
		Instructor:	Stanley J. Bezuszka, S. J.
	Course 5	Mt. 221-NSF	Seminar
		Instructor:	Stanley J. Bezuszka, S. J.
Summer	Course 1	Mt. 152-NSF	Statistical Inference
		Instructor:	William Perrault

Statistics for the Academic Year Institute 1967-1968

1. The total enrollment for the Institute was 35.
2. There were 32 schools represented.
3. There were 31 cities and towns represented by the schools.
4. There were 17 states, the Philippines, and Zambia represented.

In-Service Institute - September 30, 1967 to June 1, 1968

(61 NSF Participants, 9 Tuition Students, 6 University Guests)

The 1967-1968 In-Service Institute was the third and final institute in the multi-term program of in-service institutes. The format for classes that was introduced during the preceding year 1966-1967 was retained as it appeared to be an effective arrangement. The two courses that were offered in this institute were being taught to teacher participants for the first time.

About thirty-five of the participants are active in the degree program. By combining a series of in-service institutes with at least one summer institute, they will be in a position to satisfy the course requirements. It is not possible to earn the Non-research Master of Arts Degree in Mathematics by participating exclusively in in-service institutes. A person who enrolls in the Non-research Master of Arts Degree in Mathematics Program should complete all prerequisites and requisites within five years from the date he matriculates. This ruling applies to part time as well as to full time students.

An in-service institute is often used as a proving ground. If a participant appears promising and does well academically, then, provided he applies to our academic year program, he has a good chance of being selected for a grant. In this institute, two participants were chosen to continue their graduate studies in the Academic Year Institute 1968-1969.

In-Service Institute Program September 30, 1967 to June 1, 1968

Course 1 Mt. 203-NSF (61 NSF Participants, 7 Tuition Students, 7 University Guests)

Sequences and Series

Instructor: Stanley J. Bezuszka, S.J., Associate Professor
Department of Mathematics, Boston College

Course 2 Mt. 223-NSF (61 NSF Participants, 9 Tuition Students, 6 University Guests)

Introduction to Topology

Instructor: Margaret J. Kenney, Instructor
Department of Mathematics, Boston College

Statistics for the In-Service Institute 1967-1968

1. The total enrollment for the Institute was 76.
2. There were 63 schools represented.

3. There were 55 cities and towns represented by the schools.
4. There were 4 states represented.

Cooperative Unit Study Program (CUSP 1 and CUSP 2) September 1967 - June 1968

(CUSP 1 - 8 Tuition Students) (CUSP 2 - 4 Tuition Students)

The Cooperative Unit Study Program extension courses continue to operate on a limited basis. Course 2 is currently being revised and interested students have been discouraged from enrolling in the course until the revision is complete.

The majority of teachers who enroll in these courses do so as a means of initiating self-improvement or of satisfying school regulations concerning refresher courses and salary increments. There have been a few teachers who have applied the undergraduate credits earned in course towards masters programs at other institutions. In spite of the fact that these are labeled extension courses, the credits were accepted upon receipt of a description of the course content. Also, several teachers have become interested in Boston College through the correspondence courses. Some have initiated and completed studies in the Non-research Master of Arts program.

Statistics on the Cooperative Unit Study Program 1967-1968

CUSP 1

1. The total enrollment for the Institute was 8.
2. There were 6 schools represented.
3. There were 6 cities and towns represented by the schools.
4. There were 6 states represented.

CUSP 2

1. The total enrollment for the Institute was 4.
2. There were 3 schools represented.
3. There were 3 cities and towns represented by the schools.
4. There were 2 states, Canada and Lebanon represented.

Summer Institute - June 24 to August 2, 1968

(65 NSF Participants, 31 Tuition Students, 2 University Guests)

The 1968 Summer Institute was the third in a series of three sequential summer institutes. The courses in the Institute were divided in three tracks. Although this was the terminating institute in a series, about one-half to two-thirds of the teacher participants were mid-stream in their graduate studies. Thus, in planning a new multi-term program of institutes, it would be necessary to coordinate the courses to accommodate both new and returning teachers.

On the basis of observations of the Staff over the past three summers, and considering participant comments, we hope to initiate a new format for summer courses. In each summer of the proposed new sequence, a participant will take just two courses. Since each course will be worth four graduate credits, the participant will be subject to longer lectures and problem sessions. However, the teacher will be exposed to more material concentrated in two areas rather than three and consequently should attain a better grasp of the subject. The participant will earn the same total of graduate credits in three summers as in the present program.

Summer Institute Program June 24 to August 2, 1968

SEQUENCE 1

Course 1 Mt. 216-NSF
(30 NSF Participants, 10 Tuition Students, 1 University Guest)
Elementary and Intermediate Algebra Treated from the Standpoint and Methodology of Modern Algebra, Part 1
Instructors: Stanley J. Bezuszka, S. J., Associate Professor
Department of Mathematics, Boston College

Margaret J. Kenney, Instructor
Department of Mathematics, Boston College

Course 2 Mt. 217-NSF
(30 NSF Participants, 10 Tuition Students, 1 University Guest)
Elementary and Intermediate Algebra Treated from the Standpoint and Methodology of Modern Algebra, Part 2
Instructors: Stanley J. Bezuszka, S. J.

Margaret J. Kenney

Course 3 Mt. 295-NSF
(30 NSF Participants, 8 Tuition Students)
Mathematical Analysis
Instructor: Mary E. Farrey, Instructor
Mathematics Institute, Boston College

SEQUENCE 2

Course 1. Mt 289-NSF
(35 NSF Participants, 13 Tuition Students)
Symbolic Logic
Instructor: Mary E. Farrey

Course 2a. Mt. 231-NSF
(16 NSF Participants, 9 Tuition Students)
Mathematical Analysis II
Instructor: Paul Thie, Assistant Professor
Department of Mathematics, Boston College

Course 2b. Mt. 141-NSF
(19 NSF Participants, 6 Tuition Students, 1 University Guest)
Vector Analysis
Instructor: Stanley J. Bezuszka, S. J.

Course 3. Mt. 233-NSF
(35 NSF Participants, 13 Tuition Students)
Modern Algebra
Instructor: Jacqueline Criscenti, Assistant Professor
Department of Mathematics, Boston College

Statistics for the Summer Institute 1968

1. The total enrollment for the Institute was 98.
2. There were 94 schools represented.
3. There were 92 cities and towns represented by the schools.
4. There were 25 states, the District of Columbia, Ireland and Jamaica represented.

IV. The Mathematics Institute Computer Research Center

The Mathematics Institute Computer Research Center started functioning in March 1962 with the acquisition of an IBM 1620 Data Processing System. The initial equipment consisted of the 1620 main console, the 1622 card read punch and a memory of 20,000 decimal digits. In time these were supplemented by the 1623 additional memory unit which enlarged the memory to 40,000 decimal digits, the indirect address and automatic divide attachments, two 026 printing key punches, and two 1311 disk drives. These together with an IBM 1130 Data Processing System constitute the present computing facilities of the Center.

The Computer Research Center was established

a) to encourage and further the research projects of the Mathematics Institute as well as to assist the individual research efforts of the University community as a whole. When the Computer Research Center opened, these were the only computing facilities on Campus. During the period from March 1962 to October 1964 twenty different offices, departments and schools of the University had made use of the computer.

b) primarily to develop courses and materials for the secondary school student and teacher in computer-oriented mathematics. A fact acknowledged by many mathematics educators was that computer technology would be the next critical factor to affect the mathematics curriculum in the nation's schools. Thus the Director and Staff of the Institute had to first convince the secondary school teachers that computers would have a distinct influence on the secondary school mathematics curriculum and that this would be realized in the not too distant future. Secondly, once persuaded, the teachers had to be trained to deal with the latest innovations.

In 1963 a series of seminars were conducted for teachers and administrators of the secondary public, parochial and private schools in and around Boston. Over 180 teachers participated in the short lecture series whose purpose was to give a brief introduction to the teaching aspects of the computer and to explain the rudiments of computer programming. In particular a proposed computer program syllabus for the high schools was outlined in some detail. The computer programming syllabus could be planned either as a four year sequence or as a separate course for the junior or senior year. On the one hand the student would learn programming techniques gradually and apply them only to the mathematics currently being taught in course. On the other hand the student would be required to absorb the more essential elements of programming and applications in just one course. However, the student in the latter instance would have the opportunity to review a substantial amount of his mathematics courses from previous years by means of the illustrative problems and assignments in the programming class.

Experimental classes with both teachers and students began in February 1963. In the preliminary stages of the experiment there was more concern for the high school student than for the teacher since facts pertaining to possible text books and course content were urgently needed. The classes for high school students were held at Boston College during the school year and each summer. The size of every class was small to insure each student the maximum opportunity to personally operate the computer. Since the first class during the winter of 1963, about 140 students have participated in the course. At present the courses for high school students are restricted to the summer session.

The first class for high school teachers began during the summer of 1964. Currently a course for secondary school teachers is offered in the regular summer session on an annual basis. A course in computer programming and computer-oriented mathematics has become one of the prescribed courses in the Non-research Master of Arts Degree Program. Consequently, the course is offered during the year to teacher participants of the Academic Year Institute and in certain summers to members of the summer institutes. In the past four years nearly 340 mathematics teachers have been enrolled in the course. Many of these teachers are now giving some elements of programming to students in their secondary mathematics classes.

A third group has been reached by the Staff of the Mathematics Institute. These are the undergraduate mathematics majors in the College of Arts and Sciences and the School of Education. Since the spring semester of 1964, an elective course in computer programming has been available to these students. It is hoped that the students will be able to make immediate use of programming by applying the knowledge gained to appropriate research problems that may be assigned to them as undergraduates.

The impressions gained from the numerous courses offered together with the experience gained from the many problems solved by computer methods are invaluable to the Staff. With these guidelines to follow, effective materials can be prepared and more meaningful course outlines and plans for the future can be formulated.

The chronological development of the Computer Research Center from 1962 to the present has been presented in separate reports issued twice yearly. Thus certain statistical information about the Computer Research Center can be obtained upon request.

V. The Cooperating Schools Program

A. Background

The Cooperating Schools Program was a direct consequence of operating institutes. The institutes have had many and varied effects on the teachers who attended them. In institutes held between 1957 and 1959 when the teachers were first introduced to the content of modern mathematics, they found it enjoyable and stimulating but they were not convinced that the material could be successfully taught in the high school, much less in the junior high school. The majority considered this type of mathematics too sophisticated and abstract for the average student. In institutes held between 1959 and 1961 the teachers' comments were as enthusiastic as their predecessors, but many still felt insecure and wished to postpone initiating a modern mathematics program in their respective schools. In institutes held between 1961 and the present, the academic climate has changed considerably. Now it is rather an accepted policy in schools and school systems that the teacher in attendance at an institute is expected to introduce the new ideas and concepts in his classes. Furthermore, some type of contemporary mathematics is already in effect at most schools. To assist teachers who attended the Boston College institutes in beginning a contemporary mathematics program in their schools, at least one of these two features was an integral part of each institute program. They were

1.) a demonstration class so that the teacher could observe the reactions of the youngsters to the new material. Student interest was an important factor for the teachers.

2.) text materials which comprised part of the content of the institute course but which could be used directly and immediately in a classroom situation. The time element as regards lesson preparation was another important factor for the teachers.

B. Developmental Stages

After the in-service institute, 1957-1958, and ultimately after each succeeding institute there were a number of teacher participants who began to initiate on a limited scale a new mathematics program in their schools using the materials prepared for them by the Boston College Mathematics Institute Staff. At first, the new texts merely were utilized as a supplement to the traditional mathematics text. In some instances, these texts were simply used in the school mathematics club while in other cases they were employed as extra and advanced work for the brighter student. Each year Boston College administered a control group of schools and teachers who were using the texts exclusively and in the various ways mentioned above. Supervisors were appointed to visit the schools and discuss questions and problems with the teacher in charge. Questionnaires on several aspects of the program and the texts were completed by the students in the program and the cooperating teacher. Soon the program took on a national scope since teachers from other states in attendance at summer and academic year programs wished to inaugurate classes. Statistics and explicit details on the size and range of the program together with evaluative procedures are not included in this Report. However, a sampling of schools and teachers who have been involved in teaching some aspect of the Boston College Mathematics Institute Project at some time during the last several years is given in Appendix J of this Report. Presently there are many teachers involved who have obtained the texts for classroom use who have never attended a Boston College institute. This is particularly the case since the Director of the Institute is now associated with a commercial text series.

VI. Materials Available at the Institute

A. Sets, Operations and Patterns

Stanley J. Bezuszka, S. J.
Part 1 - 1958 - 272 pages
Part 2 - 1958 - 284 pages
Teacher Supplement - 114 pages

Sets, Operations and Patterns represents the initial efforts of the Staff of the Mathematics Institute in developing materials in contemporary mathematics for the secondary school student. This text originated as a result of an in-service course for secondary school teachers. As sections were written, the teachers in the course experimented with them in their own classes. After studying the teachers' comments and suggestions, the material was edited and expanded into the present volume. Sets, Operations and Patterns, Parts 1 and 2, written in a historical vein, is intended for a junior high school audience. The vocabulary and the presentation of the content indicate that the reader be of average or above average ability. There are several departures from routine methods of explaining certain basic concepts which, though unusual, are meant to give the student more understanding, insight, and interest in mathematics. In general, the emphasis on structure is maintained throughout the context.

The table of contents for Part I includes:
counting, systems of numeration, bases and base conversions, introductory set theory, cardinal and ordinal numbers, operation and properties of addition, modulo addition, operation and properties of multiplication, modulo multiplication, operation and properties of subtraction, operation and properties of division, concept of a variable, relations, order assumption.

The table of contents for Part 2 includes:
linear equations and inequations and their solutions, the mathematical system of sets, development of measurement, transfinite cardinal numbers.

B. Contemporary Progress in Mathematics

Stanley J. Bezuszka, S. J.
Part 1 - 1962 - 288 pages (including 28 pages of answers)
Part 2 - 1962 - 270 pages (including 14 pages of answers)
Teacher Manual to Parts 1 and 2 -1962 - 128 pages
Part 3 - 1964 -272 pages (including 34 pages of answers)

The Contemporary Progress in Mathematics Series began with the writing of Part 1 early in 1962. This sequence of texts is directed toward the average to slightly above average junior high school student starting with grade 7. The series is modern in content and spirit. The approach used is similar to that of the Sets, Operations and Patterns, namely history and structure play an important role in the development of the text. However, the order of the content is somewhat different and the format is more sophisticated. The technique of introducing an occasional fictitious character is used to stress the more significant ideas. In addition some new topics are treated here. In general, Parts 1 and 2 are aimed at grade 7, while Part 3 is intended for grade 8. Over and above serving as a classroom text, the Contemporary Progress in Mathematics Series has been used in the in-service training of elementary and junior high school teachers.

The table of contents for Part I includes:

Unit 1 (Numeration): introductory concepts of set theory, one to one correspondence, cardinal number, counting, Babylonian, Egyptian, and Roman numerals, systems of numeration, the mythological Obogs, bases two through twelve, conversion.

Unit 2 (Operations with Numbers): finite versus non-finite sets, the 'how many questions' applied to the set of Natural numbers, the concept of a total and the operation of addition, assumptions for addition of natural numbers, the operation of multiplication, assumptions for multiplication of natural numbers, subtraction and division and their properties, introduction to modulo arithmetic, the mathematical system of integers.

The table of contents for Part 2 includes:

Unit 3 (Rational Numbers): the background for the concept of a fraction, measurement, measures, the mathematical system of natural fractions, pertinent definitions in the system of natural fractions, deci-mal representation of natural fractions, definitions essential to the study of deci-mals, terminating and non-terminating deci-mals, operations on these elements, bi-cimals, rounding off and error in measurement, rudiments of practical geometry, up-dated definitions of terms in geometry, ratio , percent, proportion and rates.

The table of contents for Part 3 includes:

Unit 1 (Mathematical System of Sets): the mathematical system of sets, essential terminology and definitions, graphical representation of sets by Venn diagrams, solutions of word problems involving set theory.

Unit 2 (Mathematical System of Real Numbers): a second look at the mathematical system of Natural numbers from a different viewpoint.

Unit 3 (Puzzles, Open Sentences, and Solution Sets): The Egyptian approach to the solution of a linear equation, the contemporary approach to the solution of linear equations.

Unit 4 (Equations and Mathematical Systems): detailed solutions to equations and inequations within the framework of a mathematical system, generalizations of solution sets of equations and inequations in one variable.

At present, plans are being formulated and research is in progress for Part 4 of the series.

C. Heritage Builders in the Arts and Sciences

Stanley J. Bezuszka, S. J.

1962 (revised edition) 384 pages

Heritage Builders in the Arts and Sciences was written to assist both the student and teacher in the preparation of research papers and other activities that require accurate dates and authoritative sources. Actually, the book is a reference to references, useful to those at both the secondary and university levels. The outstanding men in mathematics, physics, chemistry, biology, (medicine and physiology), geology, philosophy, theology, literature, music, architecture, sculpture, and painting are listed. The emphasis is on those in the physical sciences. An extensive list of the major periodicals in mathematics, physics, chemistry, and biology is included. Nobel Prize winners in the different fields are identified. A chronological summary and index complete the text. References of complete works and officially recognized biographies are given for some of the more significant men in the various disciplines.

D. General Contemporary Mathematics

Stanley J. Bezuszka, S. J.
1963 - 350 pages (including 40 pages of answers).

General Contemporary Mathematics was written particularly for the average seventh grade student. This text is a moderate exposition of contemporary mathematics. The author's objective in writing such a textbook is to produce material which the student can read effectively by himself. The topics treated are comparable to those which are presented in the majority of the newer textbooks directed at the junior high school level.

The approach is somewhat historical and provides an appropriate backdrop for the development of certain basic mathematical ideas. Fictional characters are introduced who represent certain periods in history to stimulate student interest and to help create a certain degree of realism. In particular, there is one individual who appears throughout the text to maintain a thread of continuity. Actually the historical aspect occurs in conjunction with a structural approach. Definite emphasis is placed on the concept of a mathematical system. The particular mathematical systems given in the text are listed in the table of contents described below.

General Contemporary Mathematics includes: introductory set theory and terminology, one-to-one correspondence, cardinal numbers, Babylonian, Egyptian, Roman, and Hindu-Arabic systems of numeration, counting, operations of addition, subtraction, multiplication, and division of natural numbers in base ten and other bases, properties of these operations, modulo arithmetic, finite and non-finite sets, mathematical system of natural numbers, rational numbers, operations and properties, mathematical system of rational numbers, introduction to ratio, per cent, and proportion with application.

Although General Contemporary Mathematics was intended to be strictly a junior high school textbook, it has since developed into a manual in introductory modern mathematics for parent classes and has become a basic text in the in-service training of elementary school teachers.

Future plans include a Book 2 of General Contemporary Mathematics for grade 8 to be patterned in the style and language of Book 1.

E. Cooperative Unit Study Program, Course 1

Stanley J. Bezuszka, S. J.
1965 (revised edition) 1028 pages (including 100 pages of answers).

Cooperative Unit Study Program, Course 1 is a text in contemporary mathematics for teachers and future teachers. The original text was developed in 1960 for a correspondence program for teachers who had not yet been given the opportunity to attend any institute in mathematics sponsored by the National Science Foundation at the various colleges and universities throughout the country. The extension program operated under the auspices of the National Science Foundation the first two years of its existence and since that time has been under the administration of the Boston College Mathematics Institute.

The course procedure is to have the teachers submit problem sheets on the average of one per week. The corrected results are then returned to the sender with a detailed answer sheet. When 40 problem units are completed, there is a written final examination based on each of the home study units. Upon successful completion of the course work, the teacher is awarded three upper division undergraduate credits in mathematics. The average time required for completion is one ten-month period.

The second year that the correspondence program was in operation, the text began to serve a dual purpose. The units of Course 1 became a class text for undergraduate students enrolled in teacher training programs and for graduate students, that is, for veteran teachers on academic leave studying for advanced degrees. A year later the text was put into still another type of service. Many teachers who had been trained in these materials at Boston College returned to their school systems and began conducting in-service programs for their colleagues. Thus the units published in 1960 have affected three levels of instruction, i. e. extension, classroom, and in-service.

The original version of the Cooperative Unit Study Program, Course 1 has been modified considerably. Most of the 45 units have been altered in some way. New problem sections have been added to each of the 40 problem units. The format has been preserved but the new edition is bound in two volumes. Each unit is sufficiently complete in itself to give an introductory treatment of a basic concept or to explain a fundamental process of mathematics. Every study unit consists of a history section, a text section, an example section, and a problem section.

The revised edition of Cooperative Unit Study Program, Course 1 is available to those who wish to enroll in the correspondence course, to individuals for purposes of private study, and to those who wish to obtain copies as texts for their classes.

The table of contents for the revised Cooperative Unit Study Program, Course 1 is given below:

Units 1 - 4	introductory set notation and definitions, one-to-one correspondence, concept of cardinal number, counting, natural numbers and order, the meaning of a numeral.
Units 5 - 9	numeral systems: Babylonian, Egyptian, Hebrew, Chinese, Greek, Roman, Mayan, Hindu-Arabic; introduction to bases of number systems, the abacus and counting board, the concept of positional principle, tables for bases two through twelve for the operations of addition and multiplication, conversions from one base to another, natural fractions and deci-mals in the different bases.
Units 10 - 11	concept of equivalent sets, cardinal number of finite and non-finite sets, transfinite arithmetic.
Units 12 - 14	the development of the operation of addition, mechanics of totaling processes, definition of a mathematical operation, ordered pairs.
Units 15 - 17	introduction to the concept of a relation, cartesian sets, properties of relations.
Units 18 - 21	the set of natural numbers as the basis of a mathematical system, properties of addition and multiplication, proof procedures and theorems.
Units 22 - 25	the mathematical system of sets, ordering relations and properties of order, comparisons of the mathematical

	system of natural numbers and the mathematical system of sets.
Units 26 - 29	partition of a set, the connection between a partition and an equivalence relation, Venn diagrams related to one, two, three, and four basic sets.
Unit 30	treatment of Boolean algebra with detailed examples.
Units 31 -38	introduction to the logic of propositions, logical connectives, truth tables, the mathematical system of propositions, forms of inference.
Units 39 - 40	the mathematical system of switching circuits, comparison with the mathematical system of propositions.
Supplementary Units	
Unit 41	number
Units 42 - 45	relations, properties of relations, formulas for the number of relations having certain properites, theorems on relations.

F. Cooperative Unit Study Program, Course 2

Stanley J. Bezuszka, S. J.

1962 - 1966 - 1058 pages (including 178 pages of answers)

Cooperative Unit Study Program, Course 2 is a text in contemporary mathematics for teachers and future teachers. The content of Course 2 continues that of Course 1. The text has been in preparation since 1962. Course 2 is also offered on an extension basis under the administration of the Boston College Mathematics Institute. The operational procedure is the same as that for Course 1. In addition these units constitute a text book for courses for undergraduate potential teachers and for veteran teachers studying in a graduate degree program.

The format of the Course 2 is patterned closely along the lines of the Course 1. Each study unit is composed of a history section, a text section, an example section, and a problem section. There are 40 problem units and 5 supplementary units on topics related to the material in the study units.

The Cooperative Unit Study Program, Course 2 is available to those who wish to enroll in the correspondence course, to individuals for private study, and to those who wish to purchase it as text material for their classes.

The table of contents of the Cooperative Unit Study Program, Course 2 is given below:

Units 1 - 6	ways of defining integers, absolute value, isomorphism,

	extension of a mathematical system, the mathematical system of integers, integers as order pairs, equivalence classes.
Units 7 - 11	natural fractions and the transition to common rational numbers, countability, denseness, the mathematical system of common rational numbers, isomorphism and extension, bounded sets, least upper and greatest lower bounds, equivalence classes, common rational numbers as order pairs.
Units 12 - 19	ratios, equivalence of ratios, equivalence classes, concrete and abstract approach to ratio. proportion, constant of proportionality, rate, equality of rates, algebra of units and dimensions, measurement, dimensional and non-dimensional quantities, operations on dimensional and non-dimensional quantities, concrete and abstract approach to percent, percent numbers, operations on percent numbers, non-terminating periodic deci-mal numbers and operations defined on these elements, geometric series.
Units 20 - 21	mathematical system of rational numbers, the number line, isomorphism, construction of the rational numbers from the integers.
Units 22 - 26	discovery of irrational numbers, proofs of the irrationality of 2, rational approximations for irrational numbers, Babylonian approximations, side and diagonal numbers, continued fractions, Newton's method, non-terminating non-periodic deci-mal numbers, algebraic and transcendental numbers, operations on irrational numbers, real numbers, properties of the real numbers, proof, the mathematical system of the real numbers.
Units 27 - 29	complex numbers as order pairs, in the form x + yi, in polar form, the mathematical system of the complex numbers, absolute value, conjugates, de Moivre's theorem, solution of certain equations in the complex number system.
Units 30 - 31	Peano assumptions, proofs of theorems in the Peano system, mathematical induction, proofs of theorems requiring mathematical induction.

Unit 32	congruence of integers, congruence theorems, residue classes, clock arithmetic, divisibility rules.
Units 33 - 35	solution of linear equations and inequations in one variable, quadratic, cubic and quartic equations in one variable, solution of linear congruences.
Units 36-37	functions, order pairs, and mappings, inverse functions, basic operations on functions, composition of functions.
Units 38 - 40	algebraic structures, including groupoids, semi-groups, monoids, groups, rings, integral domains, and fields, examples, theorems, isomorphism.
Supplementary Units	
Unit 41	algebra of dimensional and non-dimensional quantities.
Unit 42	continued fractions.
Unit 43	Dedekind cuts.
Unit 44	theorems in the mathematical system of real numbers
Unit 45	the real number line.

G. The Wonder-Full World of Mathematics

Stanley J. Bezuszka, S. J.
1968 - 195 pages

The Wonder-Full World of Mathematics is a booklet that treats selected topics in contemporary mathematics. This text is to be used as a companion to a series of fourteen half-hour films which were developed for the secondary school student. The films have been aired on television for two fourteen-week periods for the purpose of stimulating student interest in mathematics. At present, teachers can borrow the films on a rental basis from the Institute. Each chapter in the booklet corresponds to one of the films, In addition to reviewing and extending the material covered in the film, problems relating to the topics are included for the students to solve. Our philosophy in this instance is that films are more meaningful when they have a follow-up that reinforces the presentation. The titles of the films are

Systems of Numeration, 1
Systems of Numeration, 2
Wonderland of Bases
Fact and Fantasy, 1
Systems and Structures, 1
Systems and Structures, 2

Modular Arithmetic
Fact and Fantasy, 2
Modern Sets, 1
Modern Sets, 2
Formal and Symbolic Logic
Fact and Fantasy, 3
Equations and Inequations
Common Rational Numbers

VII The Institute Agenda for the Future

The plans of the Boston College Mathematics Institute commencing in September 1968 are as follows:

A. Institutes and Courses

It is hoped that the program of institutes will continue to flourish. Although the program of courses is expected to remain stable, courses currently on the list may be altered and new courses will be added so that the resulting course program will be beneficial to the teacher participant. It is anticipated that in-service programs will be conducted in various school systems by former institute participants. Consultation services will be extended to administrators and teaching faculties of school districts. The immediate commitments are listed below.

1. Academic Year Institute in cooperation with the National Science Foundation from September 23, 1968 through June 13, 1969. Related Summer Program June 23, 1969 through August 1, 1969.
2. In-Service Institute in cooperation with the National Science Foundation from September 28, 1968 through June 7, 1969.
3. Cooperative Unit Study Program extension course, Courses 1 and 2, are sponsored by Boston College from September 1968 through June 1969.

B. Written Materials

Although the preparation of written materials is secondary in importance to the operation of institutes, the writing program of the Boston College Mathematics Institute extends in several directions. There are additions and revisions to consider. The items listed in the sequel are arranged according to priority.

1. The director of the Institute is principal author and consultant for a K -12 series of mathematics texts. In addition, a member of the Institute staff is a collaborating author for the junior high segment of the series. There

is still some writing and revision of manuscript to be carried out with respect to the grade 7 and 8 texts. The series known as Contemporary Progress in Mathematics is published by William H. Sadlier, Inc, of New York.

2. Research for completion of Part 4 of Contemporary Progress in Mathematics is continuing. Parts 1, 2, 3 are complete already and are described in Section VI of this Report. Although this text bears the same name as the commercially published series, these four texts are more outspoken in their presentation of modern concepts for the junior high school student.

3. Course 2 of the Cooperative Unit Study Program completed in 1966 requires revision. Various units must be rewritten and new problem sections should be devised for the second printing.

4. It is the wish of the author that each new edition of Heritage Builders in the Arts and Sciences be more thorough and extensive.than the one preceding. Since the last printing, a number of useful items have been gathered together for inclusion in an expanded edition.

5. A set of notes, Vector Analysis, has been revised and tested in several courses with institute participants. After some rechecking and insertions, the manuscript can be typed for the printer.

6. Other projects that are not as far advanced as those mentioned above are:
    a. a booklet and guide on the various drill machines and learning devices for the mathematics classroom.
    b. a text in contemporary mathematics for parents.
    c. a text in calculus for the senior high-freshman college level.
    d. a compilation of fun problems and mathematical puzzles to further student interest in mathematics.
    e. a computer-oriented mathematics text for the secondary school student.

C. Television and Films

Ideas are being formulated for a series of closed circuit television programs directed at the in-service training of mathematics teachers at various levels. Such a series of programs would be accompanied by a manual of problems that would serve as a supplement.

D. Computers

Hopefully in the not too distant future, the Mathematics Institute will be in a position to expand its existing program of computer-oriented mathematics. This will include the preparation of text materials for the student and teacher. Over and above the development of a computer-assisted mathematics text for the secondary school, the Institute would like to increase the course offerings in the area for undergraduates and the secondary school community. There is a need for a publication aimed at the secondary school student whose major objective would be to foster interest in mathematical problems related to computers. The Mathematics Institute will investigate the feasibility of sponsoring the production of such a magazine or journal.

E. Laboratory Devices

This project will continue the investigation and research of earlier studies in the development of materials, machines, and equipment for the contemporary mathematics classroom. Special attention will be given to streamlining existing machines so that their cost will be well within the means of the average school budget. Another incentive in this project is to construct the equipment in compact units.

Vitae of Director Stanley J. Bezuszka, S. J.

Place of Birth: Wilna, Poland (Naturalized American)

Degrees in Course: A. B., 1939; A. M., 1940; M. S., 1942; Boston College, Chestnut Hill, Massachusetts

Ph. L., 1940; S. T. L., 1947; Weston College, Weston, Massachusetts

Ph. D., 1953; Brown University, Providence, Rhode Island

Listed in:

American Men of Science
Register of Scholars and Scientists of Polish Background in the United States
Who's Who in American Education
Who's Who in the East
Dictionary of International Biography
Who's Who in Data Processing

Fraternities:

Sigma Xi	(Brown University Chapter	-1953)
Sigma Pi Sigma	(Boston College Chapter	-1953)
Phi Rho Alpha	(Boston College Chapter	-1941)

Position:

1) Director, Mathematics Institute - Boston College since 1957
2) Associate Professor in Department of Mathematics - Boston College since 1961
3) Assistant Professor in Department of Physics - Boston College since 1953
4) Chairman, Department of Mathematics - Boston College 1953-1967
5) Director, Mathematics Institute Computer Research Center - Boston College since 1962
6) Investigator on contracts with Air Force Cambridge Research Center, 1954-1957
7) Teacher of Mathematics at the Polaroid Corporation, Cambridge, Massachusetts to Polaroid Personnel, 1957-1961
8) Teacher and consultant in off-campus workshops, institutes and parent classes, 1960-
9) Reader, Bureau of Research, Department of Health, Education and Welfare, Office of Education, 1967-

Offices Held:

1) Association for Teachers of Mathematics in New England
   a. Vice-President 1959-1960
   b. President 1960-1962
2) Northeastern Section of Mathematics Association of America
   a. President 1956-1957
3) National Council of Teachers of Mathematics
   a. Member of the Board of Directors 1963-1966

Memberships:

Mathematical Societies

- American Association for the Advancement of Science
- American Association of Jesuit Scientists
- American Mathematical Society
- Association for Symbolic Logic
- Association for Teachers of Mathematics in New England
- California Mathematics Council
- London Mathematical Society
- Mathematical Association of America
- Mathematics Association of Jamaica
- Northeastern Section of the Mathematics Association of America
- Psychometric Society
- Societé Mathematique de France
- Indian Mathematical Society
- American Statistical Association
- Industrial Mathematical Society
- Mathematical Society of Japan
- National Council of Teachers of Mathematics

Physical Societies

- American Physical Society
- Acoustical Society of America
- American Institute of Physics
- Institute of Radio Engineers
  - Professional Groups:
    - Electronic Computers
    - Information Theory
    - Ultrasonics Engineering
- Society for Industrial and Applied Mathematics
- American Association of Physics Teachers

Other Societies

- Albertus Magnus Guild
- International Platform Association
- National Catholic Educational Association
- New York Academy of Sciences
- Polish Institute of Arts and Sciences in America

Narrative: During the period September 1957 through August 1968, the Director of the Mathematics Institute has taught more than one hundred twenty one-semester courses in the various divisions of Boston College and at off-campus locations. He has presented more than four hundred talks and formal lectures in the field of mathematics and mathematics education. These presentations were made in thirty states, the District of Columbia, and three foreign countries. In addition to teaching and lecturing, the Director of the Mathematics Institute has served on National Science Foundation proposal evaluation panels, judged school science fairs, held membership on numerous committees dealing with the various aspects of mathematics education and has been consultant to school systems in many states. The Director has written twenty articles and reviews within the period being considered. Currently he is principal author of a contemporary mathematics series for grades 1 - 8 with the publishing house of William H. Sadlier, Inc., in New York. The text materials published directly by the Boston College Mathematics Institute are in Section VII of this report.

Courses Taught by the Director
September, 1957 - August, 1968

COURSE NUMBER	COURSE TITLE	SCHOOL
Academic Year - 1957-1958		
Mt. 3-4	Introduction to Calculus	Ed.
Pl. 284	Symbolic Logic (second semester)	Grad. A and S
Mt. T-100	Concepts and Methods of Modern Mathematics for the Secondary School (two semesters - two sections)	Grad. (Ed)
Summer - 1958		
Ed 233	Concepts and Methods of Modern Mathematics for the Secondary School (with applications to the Physical Sciences) July 7 - August 1	Grad. (Ed)
Off-Campus		
1. Course in Mathematics at Polaroid Corporation, Cambridge, Mass. for personnel during the academic year.		
Academic Year - 1958 - 1959		
Mt. 3-4	Introduction to Calculus	Ed.
Ed. 284	Modern Concepts in Mathematics (Ford Foundation Program) (first semester)	Grad. (Ed)
Mt. 243-244	Selected Topics in Applied Mathematics	Grad A and S
Mt. 188	Senior Seminar (Symbolic Logic) (second semester)	Ed.
Mt. 1-NSF	Concepts of Elementary and Intermediate Algebra treated from the standpoint of Modern Algebra (two semesters) (ISI)	Grad A and S
Summer - 1959		
Mt. 1-NSF	Concepts of Elementary and Intermediate Algebra treated from the standpoint of Modern Algebra (SI) July 6 - August 14	Grad A and S
Off-Campus		
1. Course in Mathematics at Polaroid Corporation, Cambridge, Mass. for personnel during the academic year.		

Courses Taught by the Director
September, 1957 - August, 1968

COURSE NUMBER	COURSE TITLE	SCHOOL
Academic Year - 1959 - 1960		
Mt. 3-4	Introduction to Calculus	A and S
Ed. 284	Modern Concepts in Mathematics (Ford Foundation Program) (first semester)	Grad. (Ed)
Mt. 215-NSF	Elementary and Intermediate Algebra treated from the standpoint and methodology of Modern Algebra (first semester) (AYI)	Grad A and S
Mt. 231-NSF	Elements of Functions of a Real Variable (second semester) (AYI)	Grad A and S
Mt. (131-141)-NSF	Vector Analysis and Linear Algebra (second semester) (AYI)	Grad A and S
Mt. 5-NSF	Intermediate Algebra Integrated with Plane and Analytic Geometry (two semesters) (ISI)	Grad A and S
Summer - 1960		
Mt. 243-NSF	Application of Modern Mathematics to the Concepts and Methodology of Modern Physics (June course) (AYI)	Grad A and S
Mt. 1-NSF	Concepts of Elementary and Intermediate Algebra treated from the standpoint of Modern Algebra (SI)	Grad A and S
Mt. 5-NSF	Intermediate Algebra integrated with Plane and Analytic Geometry June 27 - August 5 (SI)	Grad A and S

Off-Campus

1. Course in Mathematics at Polaroid Corporation, Cambridge, Mass. for personnel during the academic year.

COURSE NUMBER	COURSE TITLE	SCHOOL
Academic Year - 1960-1961		
Mt. 21 - 22	Calculus	A and S.
Ed. 284	Modern Concepts in Mathematics (Ford Foundation Program) (first semester)	Grad. (Ed)
Mt. 215-NSF	Elementary and Intermediate Algebra treated from the standpoint and methodology of Modern Algebra (first semester) (AYI)	Grad A and S

Courses Taught by the Director
September, 1957 - August, 1968

COURSE NUMBER	COURSE TITLE	SCHOOL
Mt. 231-NSF	Elements of Functions of a Real Variable (second semester) (AYI)	Grad A and S
Mt. (131-141)-NSF	Vector Analysis and Linear Algebra (second semester) (AYI)	Grad A and S
Mt. 8-NSF	Intermediate Algebra integrated with Plane and Analytic Geometry (continuation) (two semesters) (ISI)	Grad A and S

Summer - 1961

Mt. 243-NSF	Applications of Modern Mathematics to the Concepts and Methodology of Modern Physics (June course) (AYI)	Grad A and S
Mt. 1-NSF	Concepts of Elementary and Intermediate Algebra treated from the standpoint of Modern Algebra June 26 - August 5 (SI)	Grad A and S

Off-Campus

1. Course in Mathematics at Polaroid Corporation, Cambridge, Mass. for personnel during the academic year.
2. Course in Contemporary Mathematics at the Convent of the Presentation, San Francisco, Calif., for secondary school teachers for 2 weeks in August.

Academic Year - 1961 - 1962

Ed. 284	Modern Concepts in Mathematics (Ford Foundation Program) (first semester)	Grad (Ed)
Mt. 3-4	Introduction to Calculus	Ed.
Mt. 188	Senior Seminar (second semester)	Ed.
Mt. 215-NSF	Elementary and Intermediate Algebra treated from the standpoint and methodology of Modern Algebra (first semester) (AYI)	Grad A and S
Mt. 141-NSF	Vector Analysis (second semester) (AYI)	Grad A and S
Mt. 243-NSF	Applications of Modern Mathematics to Modern Physics, Part I (second semester) (AYI)	Grad A and S
Mt. 10-NSF	Intermediate and Advanced Algebra integrated with Plane and Analytic Geometry, Part 2 (two semesters) (ISI)	Grad A and S

Courses Taught by the Director
September, 1957 - August, 1968

COURSE NUMBER	COURSE TITLE	SCHOOL
Summer - 1962		
Mt. 244-NSF	Applications of Modern Mathematics to Modern Physics, Part 2 (June course) (AYI)	Grad A and S
Mt. 215-NSF	Concepts of Elementary Algebra treated from the standpoint and methodology of Modern Algebra (SI)	Grad A and S
Mt. 216-NSF	Concepts of Intermediate Algebra treated from the standpoint and methodology of Modern Algebra June 25 - August 3 (SI)	Grad A and S

Off-Campus

1. Course in Contemporary Mathematics at Lowell, Mass. for secondary school teachers for the academic year (In-Service class)
2. Course in Contemporary Mathematics at the Convent of the Presentation, San Francisco, Calif., for secondary school teachers for 2 weeks in August.
3. Course in Contemporary Mathematics at the University of California, Berkeley, Calif. for secondary school teachers for 2 weeks in August.

Academic Year - 1962 - 1963

COURSE NUMBER	COURSE TITLE	SCHOOL
Mt. 3-4	Introduction to Calculus	Ed
Mt. 215-NSF	Elementary and Intermediate Algebra treated from the standpoint and methodology of Modern Algebra, Part I (first semester) (AYI)	Grad A and S
Mt. 216-NSF	Elements of Advanced Algebra treated from the standpoint and methodology of Modern Algebra, Part II (first semester) (AYI)	Grad A and S
Mt. 141-NSF	Vector Analysis (second semester) (AYI)	Grad A and S
Mt. 243-NSF	Applications of Modern Mathematics to Modern Physics, Part I (second semester) (AYI)	Grad A and S
Mt. 241-NSF	Applications of the concepts and methodology of Modern Mathematics to the problems of Modern Physics, (two semesters) (ISI)	Grad A and S

Courses Taught by the Director
September, 1957 - August, 1968

COURSE NUMBER	COURSE TITLE	SCHOOL
Summer - 1963		
Mt. 244-NSF	Applications of Modern Mathematics to Modern Physics, Part II (June course) (AYI)	Grad A and S
Mt. 215-NSF	Concepts of Elementary Algebra treated from the standpoint and methodology of Modern Algebra (SI)	Grad A and S
Mt. 217-NSF	Concepts of Advanced Algebra treated from the standpoint and methodology of Modern Algebra integrated with Plane Geometry and Analytic Geometry June 24 - August 2 (SI)	Grad A and S

Off-Campus

1. Course in Contemporary Mathematics at Lowell, Mass. for secondary school teachers for the academic year (In-Service class).
2. Course in Contemporary Mathematics at the University of California, Berkeley, Calif. for secondary school teachers for 1 week in August.
3. Course in Contemporary Mathematics at Monterey Peninsula College, Monterey, Calif. for secondary school teachers for 1 week in August.

COURSE NUMBER	COURSE TITLE	SCHOOL
Academic Year - 1963 - 1964		
Mt. 3-4	Introduction to Calculus	Ed.
Mt. 215-NSF	Elementary and Intermediate Algebra treated from the standpoint and methodology of Modern Algebra, Part I (first semester) (AYI)	Grad A and S
Mt. 216-NSF	Elements of Advanced Algebra treated from the standpoint and methodology of Modern Algebra, Part II (first semester) (AYI)	Grad A and S
Mt. 141-NSF	Vector Analysis (second semester) (AYI)	Grad A and S
Mt. (141-142)-NSF	Vector Analysis and its Applications (two semesters) (ISI)	Grad A and S
Summer - 1964		
Mt. 244-NSF	Applications of Modern Mathematics to Modern Physics, Part II (June course) (AYI)	Grad A and S
Mt. 215-NSF	Concepts of Elementary Algebra treated from the standpoint and methodology of Modern Algebra (SI)	Grad A and S

Courses Taught by the Director
September, 1957 - August, 1968

COURSE NUMBER	COURSE TITLE	SCHOOL
Mt. 295-NSF	Introductory Mathematical Analysis June 29 - August 7 (SI)	Grad A and S

Off-Campus

1. Course in Contemporary Mathematics at Lowell, Mass. for secondary school teachers for the academic year (In-Service class).
2. Course in Contemporary Mathematics at Lowell, Mass. for parents (six classes)
3. Course in Contemporary Mathematics at Monterey Peninsula College, Monterey, Calif. for secondary school teachers for 2 weeks in August.
4. Course in Contemporary Mathematics at Chaminade College, Honolulu, Hawaii for secondary school teachers for 1 week in August.

Academic Year - 1964 - 1965

COURSE NUMBER	COURSE TITLE	SCHOOL
Mt. 3-4	Introduction to Calculus	Ed.
Mt. 215-NSF	Elementary and Intermediate Algebra treated from the standpoint and methodology of Modern Algebra, Part I (first semester) (AYI)	Grad A and S
Mt. 216-NSF	Elements of Advanced Algebra treated from the standpoint and methodology of Modern Algebra, Part II (first semester) (AYI)	Grad A and S
Mt. (161-162)-NSF	Calculus and the Applications of Calculus to Physics (two semesters) (ISI)	Grad A and S

Summer - 1965

COURSE NUMBER	COURSE TITLE	SCHOOL
Mt. 141-NSF	Vector Analysis (June course) (AYI)	Grad A and S
Mt. 216-NSF	Concepts of Elementary Algebra treated from the standpoint and methodology of Modern Algebra June 28 - August 6 (SI)	Grad A and S.

Off-Campus

1. Course in Contemporary Mathematics at Lowell, Mass. for secondary school teachers for the academic year (In-Service class).
2. Course in Contemporary Mathematics at San Diego College for Women, San Diego, Calif. for elementary school teachers for 1 week. in August.
3. Course in Contemporary Mathematics at Monterey Peninsula College, Monterey, Calif. for secondary school teachers for 1 week. in August.

Courses Taught by the Director
September, 1957 - August, 1968

COURSE NUMBER	COURSE TITLE	SCHOOL
Academic Year - 1965 - 1966		
Mt. 3-4	Introduction to Calculus	Ed.
Mt. 215-NSF	Elementary and Intermediate Algebra treated from the standpoint and methodology of Modern Algebra. (first semester) (AYI)	Grad A and S
Mt. 141-NSF	Vector Analysis (second semester) (AYI)	Grad A and S
Mt. 251-252-NSF	Euclidean Plane and Analytic Geometry (two semesters) (ISI)	Grad A and S
Mt. 243-244	Selected Topics in Applied Mathematics Parts I and II (two semesters)	Grad A and S
Summer - 1966		
Mt. 243-NSF	Applications of Modern Mathematics to Modern Physics (June course) (AYI)	Grad A and S
Mt. 216-NSF	Concepts of Intermediate Algebra treated from the standpoint and methodology of Modern Algebra (SI) June 27 - August 5	Grad A and S

Off-Campus

1. Course in Contemporary Mathematics at National University, Dublin, Ireland for secondary school teachers for 1 week in August.

Academic Year - 1966 - 1967		
Mt. 3-4	Introduction to Calculus	Ed.
Mt. 215-NSF	Elementary and Intermediate Algebra treated from the standpoint and methodology of Modern Algebra (first semester) (AYI)	Grad A and S
Mt. 141-NSF	Vector Analysis (second semester) (AYI)	Grad A and S
Mt. 221-NSF	Seminar (second semester) (AYI)	Grad A and S
Mt. 271-NSF	Number Theory (two semesters) (ISI)	Grad A and S
Summer - 1967		
Mt. 141-NSF	Vector Analysis (SI)	Grad A and S
Mt. 216-NSF	Intermediate Algebra treated from the standpoint and methodology of Modern Algebra (SI) June 26 - August 4	Grad A and S

Off-Campus

1. Course in Contemporary Mathematics at the Robert Louis Stevenson School, Pebble Beach, California for secondary school teachers for 2 weeks in August.

Courses Taught by the Director
September, 1957 - August, 1968

COURSE NUMBER	COURSE TITLE	SCHOOL
Academic Year - 1967 - 1968		
Mt. 3-4	Introduction to Calculus	Ed.
Mt. 215-NSF	Elementary and Intermediate Algebra treated from the standpoint and methodology of Modern Algebra, Part I (first semester) (AYI)	Grad A and S
Mt. 141-NSF	Vector Analysis (second semester) (AYI)	Grad A and S
Mt. 221-NSF	Seminar (second semester) (AYI)	Grad A and S
Mt. 203-NSF	Sequences and Series (ISI) (two semesters)	Grad A and S
Summer - 1968		
Mt. 141-NSF	Vector Analysis (SI)	Grad A and S
Mt. 216-NSF	Intermediate Algebra treated from the standpoint and methodology of Modern Algebra (SI) June 24 - August 2	Grad A and S

Off-Campus

1. Course in Contemporary Mathematics for WHDH - TV Classroom 5, Boston, Massachusetts for 14 weeks in the first semester.
2. Course in Contemporary Mathematics at the University of the West Indies, Kingston, Jamaica for secondary school teachers for 3 weeks in August.

The Faculty of the Institute

The faculty that staffs the various institute programs operated by the Boston College Mathematics Institute consists of permanent staff members of the Institute, a number of members of the University Mathematics Department, and some part time visiting professors.

The faculty of the Institute are:

Stanley J. Bezuszka, S. J., Director

Albert A. Bennett, Professor Emeritus, Brown University

Ph. D., Mathematics, 1915, Princeton University

Dr. Bennett has been a visiting professor in the Institute for the past six years. He serves as an instructor in the academic year institute courses and seminars. He also acts as consultant on several Institute projects.

Jacqueline Criscenti

Ph. D., Mathematics, 1954, University of Minnesota

Professor Criscenti has been involved in teaching in all but one academic year institute since 1959 and in several summer institutes. A former full time faculty member of the University Mathematics Department, Professor Criscenti now teaches on a part time schedule.

Mary E. Farrey

M. A., Mathematics, 1961, Boston College

Miss Farrey has been a full time staff member of the Mathematics Institute since 1959. In addition to teaching in the institutes, Miss Farrey is the coordinator for the academic year institutes. She devotes considerable time to Institute activities which pertain to the IBM 1620 and 1130 data processing systems. Miss Farrey teaches courses on computer programming and computer oriented mathematics to undergraduates.

Margaret J. Kenney

M. A., Mathematics, 1959, Boston College

Miss Kenney has been a full time staff member of the Mathematics Institute since it was established in 1957. Miss Kenney teaches courses to institute participants and to undergraduates at Boston College. Miss Kenney is currently the associate director for summer institutes, coordinator for in-service institutes and extension courses with cooperating schools. Her responsibilities also include working with the director on a series of mathematics texts for the junior high school.

Instructors in the Institutes 1957 - 1968
Summer, In-Service, Academic Year

Name	Different Courses Taught*	Number
Bennett, Albert A.	Mt 233, Mt 289	2
Bilodeau, Gerald G.	Mt. 6, Mt. 152, Mt. 231, Mt. 295	4
Bezuszka, Stanley J., S. J.	Math. Workshop, Ed 233(1, 2) Mt. 1, Mt. 5, Mt. 8, Mt. 10, Mt. T-100, Mt 131-141, Mt. 141, Mt. 142, Mt. 161, Mt. 162, Mt. 203, Mt. 215, Mt. 216, Mt. 217, Mt. 221, Mt. 231, Mt, 241, Mt. 243, Mt. 244, Mt. 251, Mt. 252, Mt. 255, Mt. 271, Mt. 295	26
Calabi, Lorenzo	Mt. 151, Mt. 152, Mt. 257	3
Costello, Thomas	Mt. 231	1
Criscenti, Jacqueline L.	Mt. 9, Mt. 231, Mt. 233, Mt. 234, Mt. 235, Mt. 295	6
Davis, Russell	Ed 233 (3), Mt. T-150	2
Farrey, Mary E.	Mt. 147, Mt. 216, Mt. 217, Mt. 247, Mt. 289, Mt. 295	6
Feeney, Walter, S. J.	Mt. 3, Mt. 289	2
Kattsoff, Louis O.	Mt. 3, Mt. 4, Mt. 6, Mt. 233, Mt. 234, Mt. 289	6
Kenney, Margaret J.	Mt. 5, Mt. 151, Mt. 152, Mt. 216, Mt. 217, Mt. 223, Mt. 272	7
Lamb, Carole A.	Mt. 295	
Perrault, William	Mt. 151, Mt. 152	2
Power, John J.	Mt. 243	1
Riley, John	Mt. 231, Mt. 295	2
Sullivan, Joseph A.	Mt. 7, Mt. 231, Mt. 295	3
Thie, Paul R.	Mt. 231	1
Wolock, Fred	Mt. 151, Mt. 152	2

* The complete course number of an institute course should contain the symbol NSF, such as Mt. 233-NSF

Courses Taught in Academic Year Institutes

	1959-1960	1960-1961	1961-1962	1962-1963	1963-1964	1964-1965	1965-1966	1966-1967	1967-1968
Bennett				Mt. 233 Mt. 289	Mt. 233 Mt. 289	Mt. 233 Mt. 289	Mt. 233 Mt. 289	Mt. 233 Mt. 289	Mt. 233 Mt. 289
Bilodeau		Mt. 152	Mt. 152		Mt. 152		Mt. 231 Mt. 295		
Bezuszka	Mt. 131-141 Mt. 215 Mt. 231 Mt. 243	Mt. 131-141 Mt. 215 Mt. 231 Mt. 243	Mt. 141 Mt. 215 Mt. 216 Mt. 243 Mt. 244	Mt. 141 Mt. 215 Mt. 216 Mt. 243 Mt. 244	Mt. 141 Mt. 215 Mt. 216 Mt. 244	Mt. 141 Mt. 215 Mt. 216	Mt. 141 Mt. 215 Mt. 243	Mt. 141 Mt. 215 Mt. 221	Mt. 141 Mt. 215 Mt. 221
Calabi	Mt. 151 Mt. 152 Mt. 257								
Criscenti	Mt. 235 Mt. 295	Mt. 235 Mt. 295	Mt. 231 Mt. 295	Mt. 231 Mt. 295	Mt. 231 Mt. 295	Mt. 231 Mt. 295		Mt. 231 Mt. 295	Mt. 231 Mt. 295
Farrey							Mt. 247	Mt. 247	Mt. 247
Feeney	Mt. 289	Mt. 289	Mt. 289						
Kattsoff		Mt. 233 Mt. 234	Mt. 233						
Kenney				Mt. 152					
Perrault								Mt. 151 Mt. 152	Mt. 151 Mt. 152
Power					Mt. 243	Mt. 243			
Wolock						Mt. 151 Mt. 152	Mt. 151 Mt. 152		

Courses Taught in Summer Institutes

	1957	1958	1959	1960	1961	1962	1963	1964	1965	1966	1967	1968
Bilodeau					Mt. 6			Mt. 231		Mt. 295	Mt. 152	
Bezuszka	Math Work Shop	Ed. 233 (1, 2)	Mt. 1	Mt. 1 Mt. 5	Mt. 1	Mt. 215 Mt. 216	Mt. 215 Mt. 217	Mt. 215 Mt. 295	*Mt. 216 *Mt. 217	*Mt. 216 *Mt. 217	*Mt. 216 *Mt. 217 Mt. 141	*Mt. 216 *Mt. 217 Mt. 141
Costello											Mt. 231	
Criscenti					Mt. 9	Mt. 234				Mt. 233		Mt. 233.
Davis		Ed 233 (3)										
Farrey							Mt. 289	Mt. 216	Mt. 217	Mt. 289	Mt. 147	Mt. 289 Mt. 295
Feeney			Mt. 3	Mt. 3								
Kattsoff			Mt. 4	Mt. 6	Mt. 3	Mt. 233	Mt. 233	Mt. 233	Mt. 289			
Kenney					Mt. 5	Mt. 216	Mt. 216	Mt. 151	*Mt. 216 *Mt. 217	*Mt. 216 *Mt. 217	*Mt. 216 *Mt. 217	*Mt. 216 *Mt. 217
Lamb											Mt. 295	
Riley									Mt. 295	Mt. 231		
Sullivan				Mt. 7	Mt. 7	Mt. 295	Mt. 295		Mt. 231			
Thie												Mt. 231

* Courses taught jointly

Courses Which Have Been Given By

The Boston College Mathematics Institute Staff

Graduate Courses: (Mathematics)

Mt. 1-NSF	Elementary Algebra Integrated with Geometry and Introductory Calculus (ISI 1958-1959) Elementary and Intermediate Algebra Treated from the Standpoint and Methodology of Modern Algebra (S 1959)
Mt. 2-NSF	Introductory Descriptive and Inferential Statistics (ISI 1958-1959)
Mt. 3-NSF	Introduction to the Basic Concepts and Operations of Symbolic Logic (S 1959)
Mt. 4-NSF	Geometric Systems: Fundamentals of Euclidean and Non-Euclidean Geometries (S 1959)
Mt. 5-NSF	Intermediate Algebra Integrated with Plane and Analytic Geometry (ISI 1959-1960)
Mt. 6-NSF	Modern Algebra I (S 1960)
Mt. 7-NSF	Mathematical Analysis (S 1960)
Mt. 8-NSF	Intermediate Algebra Integrated with Plane and Analytic Geometry (Continuation) (ISI 1960-1961)
Mt. 9-NSF	Modern Algebra II (S 1961)
Mt. 10-NSF	Intermediate and Advanced Algebra Integrated with Plane and Analytic Geometry (ISI 1961-1962)
Mt. T-100	Concepts and Methods of Modern Mathematics for the High School (ISI 1957-1958)
Mt. 131-141-NSF	Vector Analysis and Linear Algebra (AYI 1959-1960)
Mt. 141-NSF	Vector Analysis (AYI 1961-1962)
Mt. 141-142-NSF	Vector Analysis (ISI 1963-1964)
Mt. T-150	Concepts and Methods of Modern Mathematics for the Elementary School (ISI 1957-1958)
Mt. 151-NSF	Probability (AYI 1959-1960)
Mt. 152-NSF	Probability and Statistical Inference (AYI 1959-1960) became Statistical Inference (AYI 1964-1965)
Mt. 161-162-NSF	Calculus and the Physical Applications of Calculus (ISI 1964-1965)
Mt. 203-NSF	Sequences and Series (ISI 1967-1968)
Mt. 215-NSF	Elementary Algebra from the Standpoint and Methodology of Modern Algebra (AYI 1959-1960)
Mt. 216-NSF	Intermediate Algebra from the Standpoint and Methodology of Modern Algebra (S 1962)

Mt. 217-NSF	Advanced Algebra from the Standpoint and Methodology of Modern Algebra (S 1963)
Mt. 219-NSF	Introductory Course in Contemporary Mathematics (1964-1965)
Mt. 220-NSF	Intermediate Course in Contemporary Mathematics (1964-1965)
Mt. 221-NSF	Seminar (AYI 1964-1965)
Mt. 223-NSF	Introduction to Topology (ISI 1967-1968)
Mt. 231-NSF	Mathematical Analysis II (Elements of a Real Variable) (AYI 1959-1960)
Mt. 233-NSF	Modern Algebra I (AYI 1960-1961)
Mt. 234-NSF	Modern Algebra II (AYI 1960-1961)
Mt. 235-NSF	Elements of a Complex Variable (AYI 1960-1961)
Mt. 241-NSF	Applications of Modern Mathematics to the Concepts of Modern Physics (6) (ISI 1962-1963)
Mt. 243-NSF	Applications of Modern Mathematics to the Concepts of Modern Physics, Part I (3) (AYI 1959-1960)
Mt. 244-NSF	Applications of Modern Mathematics to the Concepts of Modern Physics, Part II (3) (AYI 1961-1962)
Mt. 247-NSF	Computer Oriented Mathematics, Programming and Applications (AYI 1965-1966)
Mt. 251-252-NSF	Euclidean Geometry and Plane Analytic Geometry (ISI 1965-1966)
Mt. 255-NSF	Analytic Plane and Space Geometry (ISI 1968-1969)
Mt. 257-NSF	Geometric Systems: Elements of Euclidean and Non-Euclidean Geometries (AYI 1959-1960)
Mt. 271-NSF	Number Theory (ISI 1966-1967)
Mt. 272-NSF	Linear Algebra (ISI 1966-1967)
Mt. 289-NSF	Symbolic Logic (AYI 1959-1960) (called Mt. 234-NSF in S 1963 only)
Mt. 295-NSF	Mathematical Analysis I (AYI 1959-1960)

Graduate Courses: (Education)

none	Mathematics Workshop (S 1957)
Ed 233	Teachers of Mathematics Institute (S 1958) 1) Elements of Modern Mathematics 2) Applications of Modern Mathematics to Physical Science 3) Introductory Probability and Statistical Inference
Ed. 284	Modern Concepts in Mathematics (Ford Foundation Program) (F 1958)

Upperdivision Courses:

Mt. 121	Cooperative Unit Study Program, Course 1: Elementary Algebra Treated from the Standpoint and Methodology of Modern Algebra
Mt. 122	Cooperative Unit Study Program, Course 2: Intermediate Algebra Treated from the Standpoint and Methodology of Modern Algebra
Mt. 123	Selected Topics in Contemporary Mathematics
Mt. 147	Introduction to Computer Programming
Mt. 148	Advanced Computer Programming

Comments:

1. Course Numbers Mt. 1-NSF - Mt. 10-NSF have been replaced by course numbers in the 100's and 200's.

2. Academic Year Institute courses carry 3 credits each. A complete year's work totals 30 credits.

3. In-Service Institute courses carry credits as indicated: 1957-1958 (3), 1958-1959 (4), 1959-1960, 1960-1961, 1961-1962 (5), 1962-1963 to present, 6 credits each year.

4. Summer Institute courses carry credits as indicated: 1958 6 credits 1959, 1960, 1961, 2 credits each course; 1962-1968, 2 credits for each course in sequence 1, option of 2 or 3 credits each course for courses in sequence 2.

5. The dates in parentheses indicate the first time the course was offered.

Assistants in the Institutes 1957-1968

Alphabetical Listing

Charles Brusard	AYI 59-60, AYI 60-61
Barbara Berg Campagna	S 64, AYI 64-65, S 65, AYI 65-66, S 66
Patricia Carty	S 61
James Casaletto	S 66
James Cavanaugh	S 68
Jeanne Supple Cavanaugh	C 66-67, S 67, ISI 67-68, S 68
John Chanowski	AYI 66-67
Donna Chiacchia	AYI 67-68
Janet Charubin	C 67-68, S 68
Janet Coleman	C 60-61, S 61, AYI 61-62, C 61-62, S 62, AYI 62-63, C 62-63, S 63
Joanne Straggas Costello	C 64-65, S 65, C 65-66, S 66, S 67
Thomas Costello	AYI 64-65, S 65, S 66
Clare Coughlan	ISI 60-61
Elizabeth McGinn Culbert	C 62-63, S 63, AYI 63-64
Louis D'Angelo	S 66, AYI 66-67, S 67, AYI 67-68, S 68
Jane Darcy	AYI 61-62
Sister M. Dolorosa Dawson	S 60, S 61, S 62
Sister M. Earle Doohan	S 64
Walter Dow	AYI 59-60, ISI 59-60
John Fallon	AYI 66-67
Mary E. Farrey	ISI 57-58, S 58, S 59, AYI 59-60, S 60, AYI 60-61, S 61, AYI 61-62, S 62, AYI 62-63, AYI 63-64, AYI 64-65, AYI 65-66, AYI 66-67, AYI 67-68
Mary L. Liston Fox	C 62-63, C 63-64, S 64
Ralph Fox	AYI 60-61, S 61, AYI 61-62, S 62, ISI 62-63, AYI 63-64, ISI 63-64
John Galligan	AYI 66-67
Sister M. Floricita Gaudette	S 66, S 67, S 68
Dennis Giblin	AYI 65-66
Ailene Matuszek Keane	S 65
John Kelly	AYI 62-63, S 63, AYI 63-64, ISI 63-64, S 64, AYI 66-67, S 67
Margaret J. Kenney	S 57, ISI 57-58, ISI 58-59, S 59, ISI 59-60, S 60, ISI 60-61, S 61, ISI 61-62, S 62, ISI 62-63, C 62-63, S 63, ISI 63-64, C 63-64, S 64, ISI 64-65, C 64-65, S 65, ISI 65-66, C 65-66, S 66, ISI 66-67, C 66-67, S 67, ISI 67-68, C 67-68, S 68

Assistants in the Institutes

Joyce Kiernan	AYI 59-60, ISI 59-60
Kathleen Kingston	AYI 59-60
Josephine Kokoska	C 60-61, C 61-62, C 62-63, C 63-64, C 64-65, C 65-66, C 66-67, C 67-68
Archille Laferriere	S 59, AYI 59-60
Carole Smith Lamb	S 59, S 60, ISI 60-61, C 60-61, S 61, ISI 61-62, C 61-62, S 62, ISI 62-63, C 62-63, S 63, ISI 63-64, S 64, ISI 64-65, ISI 65-66
Edward Legowski	AYI 67-68
Adam Lewis	AYI 65-66
Maureen Murphy Lewis	C 62-63, S 63, AYI 63-64, C 63-64, S 64, ISI 64-65, C 64-65, ISI 65-66, S 66
Mary Lynch	AYI 60-61
Lauren Dinger McCauley	AYI 62-63
Mary McGowan	S 68
Sister M. Jarlath McHale	S 59, S 60
Sister M. Kenneth Moore	S 60
Mary K. Morrin	S 61
Nancy Neville	ISI 57-58, S 58, S 59, ISI 59-60, S 60, C 60-61
Ann Dunn O'Connell	S 62, C 62-63, S 63, C 63-64, S 64
Sister M. Dominic O'Donnell	S 67, S 68
Rose Genova O'Donnell	S 63, S 64, C 64-65, S 65
Carolyn Shea O'Neil	ISI 57-58, S 58, S 60, ISI 60-61, C 60-61, S 61, ISI 61-62, C 61-62, ISI 66-67, ISI 67-68
Eleanor Radzwill	ISI 57-58, S 58, S 60, S 61, C 61-62, ISI 61-62, S 62
F. Meade Reynolds	S 60, S 62, ISI 62-63, ISI 64-65, ISI 65-66, ISI 66-67, ISI 67-68
Mariano Rodriguez	AYI 63-64, S 64, AYI 64-65
Sandra Santolucito	S 65
Joseph Schuster	AYI 62-63
Catherine Shafer	AYI 60-61, AYI 61-62
Barbara Stoll	AYI 59-60
Bernard Tremblay	S 65
Barbara Vasta Victoriano	S 61, S 62, S 63
George Viens	ISI 66-67
Elizabeth Stoklosa Williamson	S 63, S 64
Elizabeth Wingate	AYI 60-61
Mary Wynn	AYI 61-62

Assistants in the Institutes

Listing by Institutes 1957-1968

Summer 1957

Margaret J. Kenney

In-Service 1957-1958

Mary E. Farrey
Margaret J. Kenney
Nancy Neville
Eleanor Radzwill
Carolyn Shea

Summer 1958

Course:

Mary E. Farrey

Demonstration:

Nancy Neville
Eleanor Radzwill
Carolyn Shea

In-Service 1958-1959

Margaret J. Kenney

Summer 1959

Course:

Mary E. Farrey
Margaret J. Kenney
Archille Laferriere

Demonstration:

Sister M. Jarlath McHale
Nancy Neville
Carole Smith

Academic Year 1959-1960

Mary E. Farrey, Co-ordinator
Charles Brusard
Walter Dow
Joyce Kiernan
Kathleen Kingston
Archille Laferriere
Barbara Stoll

In-Service 1959-1960

Course:

Margaret J. Kenney

In-Service 1959-1960 cont.

Demonstration:

Walter Dow
Joyce Kiernan
Nancy Neville

Summer 1960

Course:

Sister M. Dolorosa Dawson
Mary E. Farrey
Margaret J. Kenney
Sister M. Jarlath McHale
Sister M. Kenneth Moore
Nancy Neville
Eleanor Radzwill

Demonstration:

F. Meade Reynolds
Carolyn Shea
Carole Smith

Academic Year 1960-1961

Mary E. Farrey, Co-ordinator
Charles Brusard
Ralph Fox
Mary Lynch
Catherine Shafer
Elizabeth Wingate

In-Service 1960-1961

Course:

Margaret J. Kenney

Demonstration:

Clare Coughlan
Carolyn Shea
Carole Smith

Correspondence Course 1960-1961

Josephine Kokoska, Co-ordinator
Janet Coleman
Nancy Neville
Carolyn Shea
Carole Smith

Assistants in the Institutes

Summer 1961

Margaret J. Kenney,
Associate Director

Course:

- Janet Coleman
- Sister M. Dolorosa Dawson
- Mary E. Farrey
- Ralph Fox
- Eleanor Radzwill
- Carole Smith
- Barbara Vasta

Demonstration:

- Patricia Carty
- Mary K. Morrin
- Carolyn Shea

Academic Year 1961-1962

- Mary E. Farrey, Co-ordinator
- Janet Coleman
- Jane Darcy
- Ralph Fox
- Catherine Shafer
- Mary Wynn

In-Service 1961-1962

Course:

- Margaret J. Kenney

Demonstration:

- Eleanor Radzwill
- Carolyn Shea O'Neil
- Carole Smith

Correspondence Course 1961-1962

- Josephine Kokoska, Co-ordinator
- Janet Coleman
- Eleanor Radzwill
- Carolyn Shea O'Neil
- Carole Smith

Summer 1962

Margaret J. Kenney,
Associate Director

Course:

- Janet Coleman
- Sr. M. Dolorosa Dawson
- Mary E. Farrey
- Ralph Fox
- Eleanor Radzwill
- Barbara Vasta

Demonstration:

- Ann Dunn
- F. Meade Reynolds
- Carole Smith

Academic Year 1962-1963

- Mary E. Farrey, Co-ordinator
- Janet Coleman
- Lauren Dinger
- John Kelly
- Joseph Schuster

In-Service 1962-1963

- Margaret J. Kenney, Co-ordinator
- Ralph Fox
- F. Meade Reynolds
- Carole Smith

Correspondence Course 1962-1963

- Josephine Kokoska, Co-ordinator

Course 1:

- Elizabeth McGinn Culbert
- Ann Dunn
- Margaret J. Kenney
- Mary L. Liston
- Maureen Murphy

Course 2:

- Janet Coleman
- Margaret J. Kenney
- Carole Smith

Assistants in the Institutes

Summer 1963

Margaret J. Kenney,
Associate Director

Course:

Janet Coleman
Elizabeth Culbert
John Kelly
Maureen Murphy
Carole Smith
Barbara Vasta Victoriano

Demonstration:

Ann Dunn
Rose Genova
Elizabeth Stoklosa

Computer:

Rose Genova

Academic Year 1963 - 1964

Mary E. Farrey, Co-ordinator
Elizabeth Culbert
Ralph Fox
John Kelly
Maureen Murphy
Mariano Rodriguez

In-Service 1963-1964

Margaret J. Kenney, Co-ordinator
Ralph Fox
John Kelly
Carole Smith

Correspondence Course 1963-1964

Josephine Kokoska, Co-ordinator
Ann Dunn
Margaret J. Kenney
Mary L. Liston
Maureen Murphy

Summer 1964

Margaret J. Kenney
Associate Director

Course:

Barbara Berg
John Kelly
Carole Smith Lamb
Mary L. Liston
Maureen Murphy
Mariano Rodriguez

Demonstration:

Ann Dunn
Sr. M. Earle Doohan
Elizabeth Stoklosa

Computer:

Rose Genova

Academic Year 1964 - 1965

Mary E. Farrey, Co-ordinator
Barbara Berg
Thomas Costello
Mariano Rodriguez

In-Service 1964-1965

Margaret J. Kenney, Co-ordinator
Carole S. Lamb
Maureen Murphy
F. Meade Reynolds

Correspondence Course 1964-1965

Josephine Kokoska, Co-ordinator
Rose Genova
Margaret J. Kenney
Maureen Murphy
Joanne Straggas

Assistants in the Institutes

Summer 1965

Margaret J. Kenney,
Associate Director

Course:

Barbara Berg
Thomas Costello
Ailene Matuszek
Sandra Santolucito
Joanne Straggas
Bernard Tremblay

Computer:

Rose Genova

Academic Year 1965-1966

Mary E. Farrey, Co-ordinator
Barbara Berg Campagna
Dennis Giblin
Adam Lewis

In-Service 1965-1966

Margaret J. Kenney, Co-ordinator
Carole Lamb
Maureen Murphy
F. Meade Reynolds

Correspondence Course 1965-1966

Josephine Kokoska, Co-ordinator
Margaret J. Kenney
Joanne Straggas

Summer 1966

Margaret J. Kenney,
Associate Director

Course:

Barbara Campagna
Thomas Costello
Louis D'Angelo
Sr. M. Floricita Gaudette
Maureen Murphy
Joanne Straggas

Computer:

James Casaletto

Academic Year 1966-1967

Mary E. Farrey, Co-ordinator
John Chanowski
Louis D'Angelo
John Fallon
John Galligan
John Kelly

In-Service 1966-1967

Margaret J. Kenney,
Co-ordinator
Carolyn O'Neil
F. Meade Reynolds
George Viens

Correspondence Course 1966-1967

Josephine Kokoska, Co-ordinator
Margaret J. Kenney
Jeanne Supple

Summer 1967

Margaret J. Kenney
Associate Director

Course:

Joanne Straggas Costello
Louis D'Angelo
Sr. M. Floricita Gaudette
John Kelly
Sr. M. Dominic O'Donnell
Jeanne Supple

Computer:

Jeanne Supple

Academic Year 1967-1968

Mary E. Farrey, Co-ordinator
Donna Chiacchia
LouisD'Angelo
Edward Legowski

Assistants in the Institutes

In-Service 1967-1968

Margaret J. Kenney, Co-ordinator
Jeanne Supple Cavanaugh
Carolyn O'Neil
F. Meade Reynolds

Correspondence Course 1967-1968

Josephine Kokoska, Co-ordinator
Margaret J. Kenney
Janet Charubin

Summer 1968

Margaret J. Kenney,
Associate Director

Course:

James Cavanaugh
Jeanne Cavanaugh
Janet Charubin
Louis D'Angelo
Sr. M. Floricita Gaudette
Mary McGowan
Sr. M. Dominic O'Donnell

Computer:

Jeanne Cavanaugh

Visiting Lecturers to the Institute

The following is a list of distinguished professors who have lectured on selected topics in mathematics and mathematics education at the Boston College Mathematics Institute in the period 1957-1968:

1. Iain Adamson
Queen's College
University of St. Andrew
Dundee, Scotland

2. Jackson Adkins
Phillips Exeter Academy
Exeter,
New Hampshire

3. Yasua Akizuki
University of Kyoto
Kyoto, Japan

4. Reinhold Baer
University of Frankfort
Frankfort, Germany

5. Max Beberman
University of Illinois
Urbana, Illinois

6. Nazzareno P. Cedrone
Singer Corporation
New York, New York

7. Robert R. Christian
University of British Columbia
Vancouver
British Columbia

8. Fernando J. Corbato
Computation Center
Massachusetts Institute of Technology
Cambridge, Massachusetts

9. H. Martyn Cundy
Sherborne School
Dorset, England

10. Haskell B. Curry
University of Amsterdam
Amsterdam, Netherlands

11. Max Deuring
University of Gottingen
Gottingen, Germany

12. Jean A. Dieudonné
Faculté des Sciences
Nice, France

13. Alexander Dinghas
University of Berlin
Berlin, West Germany

14. A. Lloyd Dulmage
University of Manitoba
Winnipeg, Manitoba

15. Lewis D. Eigen
Collegiate School
New York, New York

16. Franklin Fitzgerald
Boston University
Boston, Massachusetts

17. Robert Gildea
Radio Corporation of America
Burlington, Massachusetts

18. Kurt Hirsch
Queen Mary College
London, England

19. Harold Hotelling
University of North Carolina
Chapel Hill, North Carolina

20. Richard E. Johnson
University of New Hampshire
Durham, New Hampshire

21. John Kemeny
Dartmouth College
Hanover, New Hampshire

22. George Klein
Roosevelt University
Chicago, Illinois

23. Wilhelm Maak
Mathematisches Institut der Universitat
Gottingen, Germany

24. John MacDonnell, S. J.
Holy Cross College
Worcester, Mass.

25. Albert E. Meder, Jr.
Rutgers University
New Brunswick, New Jersey

26. Karl Menger
Illinois Institute of Technology
Chicago, Illinois

27. Bruce Meserve
University of Vermont
Burlington, Vermont

28. Elmer Mode
Boston University
Boston, Massachusetts

29. H. Marston Morse
Institute of Advanced Studies
Princeton, New Jersey

30. Leo Moser
University of Hawaii
Honolulu, Hawaii

31. Paul Nesbeda
Radio Corporation of America
Aerospace Systems Division
Burlington, Massachusetts

32. Georges Papy
University of Brussels
Brussels
Belgium

33. Nathan G. Parke, III
Parke Mathematical Laboratories
Carlisle, Massachusetts

34. Alexander Peyerimhoff
Mathematisches Institut
Grissen, Germany

35. Tibor Rado (deceased)
Ohio State University
Columbus, Ohio

36. William Ransom
Tufts University
Medford, Massachusetts

37. Hans-Egon Richert
University of Gottingen
Gottingen, Germany

38. Israel Rose
Lehman College
Bronx, New York

39. Myron F. Rosskopf
Teachers College
Columbia University
New York, New York

40. W. Warwick Sawyer
University of Toronto
Toronto, Ontario

41. Francis J. Scheid
Boston University
Boston, Massachusetts

42. Andrew Schott
Consultant
Brookfield, Wisconsin

43. Sigmund Selberg
Nonger Tekrish Hogskile
Matematisk Institutt
Trondheim, Norway

44. Max Sobel
Montclair State College
Montclair
New Jersey

45. Jorge Sotomayor
Brown University
Providence, Rhode Island

46. Eduard Stiefel
Swiss Federal Institute of Technology
Zurich, Switzerland

47. Henry Syer
Kent School
Kent, Connecticut

48. Taffee Tanimoto
University of Massachusetts
Boston, Massachusetts

49. Hans Tornehave
University of Copenhagen
Copenhagen, Denmark

50. Francis Torras, S. J.
Fairfield University
Fairfield, Connecticut

51. Frederik Van der Blij
University of Utrecht
Utrecht, Netherlands

52. B. L. Van der Waerden
University of Zurich
Zurich, Switzerland

53. Anthonie Van Heemert
State University
Groningen, Netherlands

54. Wibbe Verdenius
State University
Groningen, Netherlands

55. Cornelis Visser
University of Leiden
Leiden,
Netherlands

56. Adrian Zaanen
Mathematics Institute
University of Leiden
Leiden, Netherlands

57. Hans Zassenhaus
Ohio State University
Columbus, Ohio

The Non-research Master of Arts Degree in Mathematics

The Non-research Master of Arts Degree in Mathematics is intended to be a terminal degree in mathematics. The Degree was designed expressly for the teacher who is a specialist in the teaching of secondary school mathematics. The Non-research Degree was initiated in conjunction with the first National Science Foundation-sponsored Academic Year Institute in 1959-1960. Many teacher participants in the Institute were interested in following a definite program of study with the incentive of earning an advanced degree. Naturally the motivation for this type of study was due to the expectation of better salaries and more attractive positions. Since most teachers came to the Institute with a strong background in education and methodology courses and with a rather limited exposure to mathematics courses, a degree that would comprise only mathematics courses was considered to be more beneficial. Thus with the approval of the Dean of the Graduate School, the Non-research Master of Arts Degree was established in September, 1959.

A candidate for the Non-research Master of Arts Degree in Mathematics must complete

a) thirty graduate credits in mathematics course work and receive grades in keeping with the prevailing graduate school regulations.

b) a written comprehensive examination that is administered at the close of graduate course study.

c) a major paper treating a mathematical topic that requires a moderate capacity for research.

The candidate must also have accumulated fifteen upper division undergraduate credits in mathematics courses. Currently, teachers can pursue studies in the non-research degree program by attending academic year institutes or a combination of summer and in-service institutes. Whereas the degree has been available to academic year institute participants since 1959, the non-research degree has been open to summer and in-service participants only since 1963.

Although a full time student in the academic year institute can complete the graduate courses requirement in one academic year, a part-time summer and/or in-service participant requires at the very least two full years to meet graduate course requisites. The majority earn the credits by attending three summer institutes and one or two in-service institutes. In both types of programs, the typical time for satisfying all other degree requirements is one year.

The summary below gives some indication of the impact of the Non-research Master of Arts Degree in Mathematics on the participants in the institutes from 1959-1968:

Resumé of Non-research Master of Arts Degree Recipients

Calendar Year	Academic Year (full time students)	Summer, In-Service (part time students)
1961	10	0
1962	19	0
1963	21	1
1964	15	0
1965	16	7
1966	24	5
1967	26	14
1968	23	13
Total	154	40

79.4% of the degrees were earned by students in academic year programs of study. 43.9% of the total academic year institute population have acquired the degree. Moreover, another 20% of this same group are in a position to complete the degree requirements within the allowable time period. It is difficult to make an accurate estimate of the percent of summer and in-service participants who have earned the degree because there are so many variations in the course of study for part-time students. Furthermore, a great many summer and in-service participants are not interested in seeking the degree. In addition to the forty who have graduated since 1963, approximately one hundred five individuals are maintaining an active status as degree candidates.

Statistics on Attendance 1957 - 1968

I. Institutes

A. Total enrollment for the individual institutes:

1. Summer Workshop, 1957	41
2. In-Service Institute, 1957-1958	104
3. Summer Institute, 1958	88
4. In-Service Institute, 1958-1959	122
5. Summer Institute, 1959	89
6. In-Service Institute, 1959-1960	132
7. Academic Year Institute, 1959-1960	40
8. Summer Institute, 1960	108
9. In-Service Institute, 1960-1961	103
10. Academic Year Institute, 1960-1961	43
11. Summer Institute, 1961	143
12. In-Service Institute, 1961-1962	75
13. Academic Year Institute, 1961-1962	42
14. Summer Institute, 1962	146
15. In-Service Institute 1962-1963	74
16. Academic Year Institute, 1962-1963	44
17. Summer Institute, 1963	148
18. In-Service Institute, 1963-1964	67
19. Academic Year Institute, 1963-1964	41
20. Summer, 1964	169
21. In-Service Institute, 1964-1965	70
22. Academic Year Institute, 1964-1965	29
23. Summer Institute, 1965	137
24. In-Service Institute, 1965-1966	80
25. Academic Year Institute, 1965-1966	43
26. Summer Institute, 1966	115
27. In-Service Institute, 1966-1967	70
28. Academic Year Institute, 1966-1967	36
29. Summer Institute, 1967	116
30. In-Service Institute, 1967-1968	76
31. Academic Year Institute, 1967-1968	35
32. Summer Institute, 1968	98

B. 1. The total enrollment for summer institutes is 1,398. Since several of the institutes are sequential in nature, the above figure includes duplications.

2. The total enrollment for in-service institutes is 973. Similarly, many of the in-service programs are of the multi-term variety. Hence this figure contains duplications.
3. The total enrollment for academic year institutes is 353. Here there are no duplications.
4. The combined total representing on-campus attendance at institutes including duplications is 2,724. Without duplications, the grand total is 1,518.

C. The teacher participants in the institutes came from forty-seven states, the District of Columbia, American posts overseas, Puerto Rico, and nineteen foreign countries. The distribution of students according to locality is given below:

United States and Territories

Alabama	4	Nebraska	6
Alaska	0	Nevada	0
Arizona	1	New Hampshire	27
Arkansas	0	New Jersey	39
California	45	New Mexico	4
Colorado	9	New York	88
Connecticut	51	North Carolina	9
Delaware	1	North Dakota	1
Florida	17	Ohio	32
Georgia	4	Oklahoma	1
Hawaii	2	Oregon	6
Idaho	1	Pennsylvania	77
Illinois	30	Rhode Island	28
Indiana	7	South Carolina	5
Iowa	11	South Dakota	2
Kansas	5	Tennessee	1
Kentucky	9	Texas	8
Louisiana	11	Utah	1
Maine	43	Vermont	11
Maryland	30	Virginia	11
Massachusetts	715	Washington	13
Michigan	20	West Virginia	1
Minnesota	27	Wisconsin	15
Mississippi	2	Wyoming	4
Missouri	7	A. P. O.	4
Montana	2	D. C.	11
		Puerto Rico	5

Foreign Countries

Argentina	1	Iraq	2
Austria	2	Ireland	3
Bermuda	2	Jamaica	4
Canada	20	Japan	1
Ceylon	1	Mexico	1
Germany	1	Philippines	7
Ghana	1	Syria	1
Honduras	1	Tanganyika	1
India	2	Thailand	1
Zambia	2		

II. Extension courses

Since the correspondence program began in September, 1960, 590 individuals have enrolled in at least one of the two courses that are offered. These people are residents of forty-eight states, the District of Columbia, overseas armed forces posts, Puerto Rico, various countries in the Federation of the West Indies, Lebanon and Saudi Arabia. In addition, the correspondence course has been given on an on-site extension basis under the direction of former institute participants to approximately 700 teachers.

III. Off-campus courses.

The director of the Institute has lectured to 725 teachers in special course programs conducted in cooperation with the Lowell Public Schools, Lowell, Massachusetts; the Convent of the Presentation, San Francisco, California; the University of California, Berkeley, California; the Monterey Peninsula College, Monterey, California; the Robert Louis Stevenson School, Pebble Beach, California; the San Diego College for Women, San Diego, California; Chaminade College, Honolulu, Hawaii; University College, Dublin, Ireland; the University of the West Indies, Kingston, Jamaica.

IV. Summary

In the period 1957-1968, more than 3,500 teachers in all fifty states, the District of Columbia, American posts overseas, Puerto Rico, and twenty-one foreign countries have been formally exposed in course to the materials in contemporary mathematics prepared by the Staff of the Boston College Mathematics Institute. This total does not include those teachers who purchased the texts for private study and class use.

Employees in the Institute 1957 - 1968

The list below comprises names of those individuals not mentioned in Appendices C and E who have been employed or who are currently employed in the Institute.

Joan Belliveau, clerical (graduate student)
Thomas Belton, part time printer
Penelope Bigham, clerical (student)
Elizabeth Bonczar, corrector (student)
Marica Booth, corrector (student)
John Bradshaw, electronics (student)
John Breen, corrector (student)
Hugh Brophy, electronics
Nazzareno Cedrone, consultant in electronics
John Connelly, stock (student)
Mary Crowley, corrector (student)
Georgiana Curtin, secretarial
James Dacey, electronics (student)
Edward Doherty, part time clerical
James Donovan, stock (student)
Jeremiah Donovan, secondary supervisor
Isabelle Farrey, part time clerical
Geraldine Fitzgerald, secondary supervisor
Mario Floridia, consultant in electronics
William Flynn, electronics (student)
George Gingerelli, corrector (student)
Marion Glossa, secretarial
Richard Greechie, electronics (student)
John Guldalian, clerical (graduate student)
Anthony Hecker, electronics (student)
John Herman, corrector (student)
George Huczuck, consultant in electronics
Patricia Joyce, part time secretarial
Mary Kehoe, part time secretarial
Charles Kyratzis, clerical (student)
Arthur Laramee, electronics (student)
Ellen Lynch, part time clerical
Henry Marcinek, printer
James Matarazzo, stock (graduate student)

Francis McKinnon, clerical (student)
Veronica McLoud, corrector (student)
James Moakley, printer
Kathryn Murray, secretarial
Agnes Nyhan, secretarial
Marion O'Brien, clerical
Pauline O'Brien, secretarial
John O'Rourke, part time electronics
William Ragusa, printer
John Reintjes, electronics (student)
Marybeth Reynolds, part time secretarial
Rose Ring, consultant
Charles Roubian, printer
Mary Frances Sawyer, part time secretarial
Leonora Stein, secretarial
Hugh Taylor, consultant in electronics
Francis Torras, S. J., consultant in electronics and visiting professor
Jean Tolini, corrector (student)
Carl Young, Jr., stock (student)

Cooperating Schools and Teachers Sampling 1958 - 1968

The teachers named below have used various texts in the Boston College Mathematics Institute Program with their classes at some time during the period 1958 - 1968. In some instances, the texts were considered as supplementary material, while in other cases they were the principal text for the course.

The teachers are listed with the school(s) where the material was (or is) used. Since the list covers the time 1958 - 1968, in several cases teachers named have since become associated with different schools. This list does not include the names of individual persons (teachers, professors, administrators) who have expressed interest in the program and who are working independently and separately on the materials.

SCHOOLS

Adie, Charles: Moody Junior High School, Lowell, Mass.
Almquist, Arnold: West Junior High School, Brockton, Mass.
________________: Alpena High School, Alpena, Michigan
Sister Anne Frances: Ste. Chretienne Academy, Salem, Mass.
Anthony, Sister Mary Louis: St. Paul School, San Pablo, California
Appel, Lilly: East Junior High School, Watertown, Mass.
Sister Assumpta Marie: St. Luke School, Belmont, Mass.
Bakon, Edmund: Belmont Public Schools, Belmont, Mass.
________________: Barberton City School, Barberton, Ohio
Barrett, Rev. Daniel: St. Sebastian Country Day School, Newton, Mass.
Bennett, Louise: Belmont Junior High School, Belmont, Mass.
________________: Berkeley Board of Education, Berkeley, Missouri
________________: Berlin-Boylston Regional School District, Boylston, Mass.
Bills, Lydia T.: Windsor Mountain School, Lenox, Mass.
Bird, Charles: Chelsea High School, Chelsea, Vermont
Boulton, Sister Virginia Agnes: Blessed Sacrament High School, Jamaica Plain, Mass.
College of St. Elizabeth, Convent Station, New Jersey
Bracken, Sister M. Laurentine: Holy Spirit School, Atlantic City, New Jersey
Bruce, William V.: Marshall Junior High School, Pomona, California
Burnett, Earl J.: Monroe High School, Rochester, New York
Burns, Barbara: Hugh B. Bain Junior High School, Cranston, Rhode Island
Burns, Mother Margaret: Jeanne d'Arc Academy, Milton, Mass.
Busiek, Urban: Palmdale High School, Palmdale, California

Campbell, Wallace, S. J. : Ateneo de Manila, Manila, Philippines

Carey, Sister Frances Noeline : St. Joseph Academy, Roxbury, Mass.

Sister Carol Ann : St. Francis de Sales School, Detroit, Michigan

________________: Carmel Mission School, Carmel, California

________________: Carmel Unified School District, Carmel, California

Carroll, Anna : Peabody High School, Peabody, Mass.

Carroll, Ruth : Parker Junior High School, Reading, Mass.

Chambers, Mother Bessie : Convent of the Sacred Heart Academy, St. Joseph, Missouri

Chaplain, Adrian A. : Ministry of Education, Kingston, Jamaica, West Indies

Chulski, Lucille : St. Monica School, Kalamazoo, Michigan

Clark, John J. : H. Frank Carey High School, Franklin Square, New York

Clifford, Sister Ignatius Marie : North Cambridge Catholic High School, North Cambridge. Mass.

Collins, Rev. Frederick : St. Sebastian Country Day School, Newton, Mass.

Comtois, Sister St. Vincent-Martyr : St. Joseph School, Salem, Mass.

Connors, Sister M. Ellenette : St. Mary's Boys' High School, Lynn, Mass.

Conrad, Ruth : Watkins Glen Central School, Watkins Glen, New York

Coppel, E. Wesley : Southside Junior High School, Rockville Centre, New Jersey

Criddle, Jay : Carmel Valley Junior High School, Carmel Valley, California

Crimmins, Sister M. Alphonsus : Immaculate Heart of Mary School, Scarsdale, N. Y.

Croke, Edward F. : Centre School, Everett, Mass.

Cunningham, George : State Department of Education, Concord, New Hampshire

Dawson, Sister M. Dolorosa : Cathedral High School, Portland, Maine

DeBerry, Marian : Banneker Junior High School, Washington, D. C.

Denault, Sister Theresa : Academy of the Holy Family, Lexington, Mass.

Sister Denise : Mary Joseph Academy, Biddeford, Maine

Dennis, Mrs. Ralph : Jeanne d'Arc Academy, Milton, Mass.

Desjarlais, Sister Mary Virginia : Ste. Chretienne Academy, Salem, Mass.
(includes all teachers of grades 7 - 8 in diocesan
schools staffed by Sisters of Ste. Chretienne)

Diggins, Julia E. : Albert Einstein High School, Silver Springs, Maryland

Dingle, James H. : Elk River High School, Elk River, Minnesota

Donovan, Sister Mary St. Joachim : Chicago Catholic Schools, Chicago, Illinois

Donnellan, Albert : Burncoat Street Junior High School, Worcester, Mass.

Donahoe, Sister M. Gabriel : Cardinal Spellman High School, Brockton, Mass.

Dooha Sister M. Earle : Blessed Sacrament School, Baltimore, Maryland

Doyle, Robert A. : Nashua Junior High School, Nashua, New Hampshire

Dray, Sister Dorothy Rose : Archbishop Williams High School, Braintree, Mass.

____________________ : Drumright Public Schools, Drumright, Oklahoma

Eastman, George : George Jacobs Junior High School, Eureka, California

____________________ : English Speaking School of Bern, Bern, Switzerland

____________________: Eureka City Schools, Eureka, California

____________________: Fall River Schools, Fall River, Mass.

____________________: Falmouth Public Schools, Falmouth, Mass.

Farrell, Sister Miriam Joseph : Epiphany School, San Francisco, California

Feigenbutz, Sister Francis Rita : St. Mary High School, Paterson, New Jersey

Sister Felicitas : O.M. of Consolation School, Philadelphia, Pennsylvania

Ferrari, Sister Inez : St. Anthony's School, Fitchburg, Mass.

Fogarty, Rose : Central High School, Providence, Rhode Island

Mother Francis Borgia : Villa Maria, West Chester, Pennsylvania

Gagne, Sister St. Georges-Martyr : St. Joseph Academy, Salem, Mass.

Galvin, William : Rockport High School, Rockport, Mass.

Garvin, Ann : Sarah Greenwood School, W. E. Endicott School, Dorchester, Mass.

Gay, Alfred : Belmont Junior High School, Belmont, Mass.

Sister Gertrude Aloyse : Hallahan Catholic Girls' High School, Philadelphia, Penn.

Gifford, Mark : Belmont Junior High School, Belmont, Mass.

Gifune, Frank : Lincoln-Sudbury Regional High School, Sudbury, Mass.

Gilmartin, Rev. Daniel : St. Sebastian Country Day School, Newton, Mass.

Giulieri, ________: Walnut Creek Public School, Walnut Creek, California

Glynn, Philip A. : Martin Kellog Junior High School, Newington, Connecticut

Goebel, Sister Bernardine : St. Benedict Academy, Erie, Pennsylvania

Goode, Audrey : Nightingale - Bamford School, New York, New York

Gordon, Wayne : St. Albans School, Washington, D.C.

Grant, Robert : Melrose High School, Melrose, Mass., Beverly School System, Beverly, Mass.

Hadsell, Dorothea : Albany High School, Albany, New York

Hagerty, Francis, S.J. : St. George's College (High School), Kingston, Jamaica, W.I.

Harrington, Rev. Cornelius : St. Sebastian Country Day School, Newton, Mass.

Hartford, Sister Marice : Cathedral High School, Boston, Mass., St. Clement High School, Somerville, Mass.

____________________: Hatfield Center School, Hatfield, Mass.

Higgins, Francis J. : Cos Cob School, Cos Cob, Connecticut

Hoffer, Sister Felician : St. Agnes School, Lookout Heights, Kentucky

Hogan, Joseph : Wilmington High School, Wilmington, Mass., Daly Junior High School, Lowell, Mass.

Hogan, Mary L. : Waltham High School, Waltham, Mass.

————————: Hopefields School Inc., East Sandwich, Mass.

Hoss, Mrs. Lavalie B. : Rockland Junior High School, Rockland, Mass.

Brother Hugh : Lawrence Central Catholic High School, Lawrence, Mass.

Hull, Henry : Memorial Junior High School, Huntington, Long Island, New York

Hunt, Henry : Cushing Academy, Ashburnham, Mass.

Huntington, Louise : Haverhill High School, Haverhill, Mass.

————————: Huntsville Public Schools, Huntsville, Alabama

Irving, Hally : Roger S. Fitch Junior High School, Monterey, California

Jacobs, John W. : Shrewsbury Junior-Senior High School, Shrewsbury, Mass.

Jenkins, Reba : Marshall Junior High School, Clovis, New Mexico

Jhin, Kyo R. : Huntsville Public Schools, Huntsville, Alabama

Kelley, Frances C. : Robert Treat Paine School, Dorchester, Mass., Donald McKay Junior High School, East Boston, Mass.

Kelley, Francis P. : Wilmington High School, Wilmington, Mass.

Kelley, R. Gerald : Belmont Junior High School, Belmont, Mass.

Koumjian, John : Watertown High School, Watertown, Mass.

La Civita, Louis J. : Attleboro High School, Attleboro, Mass.

Lamphere, Barbara : Winnacunnett High School, Hampton, New Hampshire

LeBlanc, H. David : Lynn Classical High School, Lynn, Mass.

Leonard, Earl W. : South High School, Worcester, Mass.

Lever, Gerald : Wilson Junior High School, Natick, Mass.

Levesque, Brother Richard : St. Ignatius High School, Sanford, Maine

————————: Longwood High School, Middle Island, New York

Sister Mary de Lourdes : Archdiocese of Detriot, Detriot, Michigan

Luz, Victor J. : Lowell High School, Lowell, Mass.

Lynch, Thomas : Waltham High School, Waltham, Mass.

————————: Lynn Public Schools, Lynn, Mass.

MacNeil, Sister Alice Carmelita : St. Mary's Girls' High School, Lynn, Mass.

Mahoney, Rev. John P., : St. Sebastian Country Day School, Newton, Mass.

Mann, Nathaniel : Acton-Boxborough High School, West Acton, Mass.

Sister Margaret Ellen : Rutherford Catholic Schools, Rutherford, New Jersey

Sister Margaret Mary : St. Ann's School, Leominster, Mass.

Martel, Sister Dominique Andre : Ste Marie High School, Manchester, New Hampshire

Mason, Willie Belle : Carmel Valley Junior High School, Carmel Valley, California

McAvoy, Sister M. Ethelwald : Cardinal Spellman High School, Brockton, Mass.
McDonald, Elizabeth : Stamford High School, Stamford, Connecticut
McDonnell, Mother Katherine : Country Day School of the Sacred Heart, Newton, Mass.
McDowell, Mother M. Cajetan : St. Mary High School, Melrose, Mass.
McFeeley, Sister M. Annetta : Presentation High School, San Francisco, California
McGonagle, Sister M. Danita : Colegio San Agustin, Puerta de Tierra, Puerto Rico
McGrail, Vincent J., S. J. : Xavier High School, New York, N. Y.
McHale, Sister M. Jarlath : St. Clare High School, Roslindale, Mass.
McKay, Sister Margaret Rita : Sacred Heart High School, Springfield, Mass.
McKenna, Sister M. Eustelle : St. Mary's Boys' High School, Lynn, Mass.
McMahon, Arthur J. : State Department of Education, Providence, Rhode Island
McShane, Mother Edith : Convent of the Sacred Heart Academy, Chicago, Illinois
Meany, James J., S. J. : Director of Education for Jesuit Philippine Schools, Manila, Philippines
Mercogliano, Anthony : Lawrence Junior High School, Lawrence, New York
Sister Miriam Clare: St. Thomas More School, Arlington, Virginia
Moses, Robert : Horace Mann School, New York, New York
Mueller, Sister Mary Pacella : Mary Queen of the Holy Rosary School, Lexington, Kentucky
Murphy, James : Swampscott High School, Swampscott, Mass.
Murphy, Sister M. Clare : Presentation High School, San Francisco, California
Murphy, N. E. : Chelsea Village School, Chelsea, Vermont
Murray, Sister M. Campion : Mount St. Joseph Academy, Brighton, Mass.
————— : New Hartford Public Schools, New Hartford, Connecticut
Ockerbloom, Marianne : Charles Sumner Smith School, Lincoln, Mass.
—————: Phillips School, Watertown, Mass.
Pierce, Robert F. : Pine Hill School, Westwood, Mass.
Pollen, Louis K.: Newton Public Schools, Newton, Mass.
—————: Port Angeles Public Schools, Port Angeles, Washington
Praetz, Edward : Lawrence High School, Lawrence, Mass.
Purcell, Edward : Deerfield Academy, Deerfield, Mass.
Raftery, Rev. William, S. J. : Campion College, Kingston, Jamaica
Mother Mary Raymond : Convent of the Holy Child of Jesus, Rosemont, Pennsylvania
Sister M. Regina : Assumption School, Chicago, Illinois
Reynolds, F. Meade : Waltham High School, Waltham, Mass.
Richard, Sister Marie Florencia : Notre Dame High School, North Cambridge, Mass.
Robert, Richard : San Rafael Military Academy, San Rafael, California

Robinson, Mother Angela : Jeanne d'Arc Academy, Milton, Mass.
Robinson, Edna : Algonquin Regional High School, Northboro, Mass.
————————: Rochester City School District, Rochester, New York
Rockwood, Norman O. : Melrose High School, Melrose, Mass.
Rodgers, Theresa : Lowell Public Schools, Lowell, Mass. (includes all teachers
of grades 7 - 8 in the city of Lowell)
Rose, Kenneth : Franklin High School, Franklin, Mass.
Sister Rose Marie : Rose Hawthorne High School, Concord, Mass.
Ross, Sister M. Mercedes : Denver Catholic Schools, Denver, Colorado
Rotonno, Sister M. Marcian : Academy of Our Lady of Perpetual Help, Tampa, Florida
Sister St. Dorothy : St. Louis School, Lowell, Mass.
Sister St. Grace : St. Martin of Tours School, Millinocket, Maine
Sister St. Marie Denise : Presentation of Mary Academy, Holyoke, Mass.
Salvucci, Leo : Boston Latin School, Boston, Mass.
————————: Sarasota High School, Sarasota, Florida
Sarkisian, Harry : Union School, Burlington, Mass.
Satterlee, Helen : Dwight School, Englewood, New Jersey
Sayles, Albert : Hopedale High School, Hopedale, Mass.
Schindelman, Blanche : Elisabeth Irwin High School, New York, New York
Schindelman, Sylvia : Talcott Junior High School, West Hartford, Conn.
Shay, Sister Anne Maureen : Cathedral High School, Hartford, Conn.
Sherman, Isidore : Oyster Bay High School, Oyster Bay, New York
Silvestri, Edmund : Eastern Junior High School, Lynn, Mass.
Sinclair, Edward F. : Hillsboro Union High School, Hillsboro, Oregon
Smith, Charles : Hartsville Junior High School, Hartsville, South Carolina
Smith, Carole A. : Broadmeadow Junior High School, Central Jr. High School, Quincy, Mass.
Spadaro, John : Somerville High School, Somerville, Mass.
Sister Teresa St. Joseph : St. Thomas the Apostle School, Peabody, Mass.
————————: Tewksbury Public Schools, Tewksbury, Mass.
Tranberg, Carl : Brookline High School, Brookline, Mass.
Tremblay, Bernard : Assumption Preparatory School, Worcester, Mass., Tahanto
Regional High School, West Boylston, Mass.
Ustaszewski, Edward : Eastern Junior High School, Lynn, Mass.
Van der Linden, Rev. Alfons : Assumption Preparatory School, Worcester, Mass., St.
Mary of the Plains College, Dodge City, Kansas
Van Orden, Keene C. : San Angelo Central High School, San Angelo, Texas

Vantura, John : Belmont Junior High School, Belmont, Mass.
Vasta, Barbara : William Taft Junior High School, Brighton, Mass.
Waite, John : Winchester High School, Winchester, Mass.
————————: Waltham Public Schools, Waltham, Mass.
Ward, Ralph : Brookline High School, Brookline, Mass.
————————: Warren G. Harding School, Philadelphia, Pennsylvania
————————: Washington Intermediate School, Honolulu, Hawaii
————————: Watertown Evening School, Watertown, Mass.
————————: Watertown Public Schools, Watertown, Mass.
Wilkinson, Ralph : Lindenhurst High School, Lindenhurst, Long Island, New York
Sister Willanna : Beverly Hills Catholic Schools, Beverly Hills, California
Willien, Sister Bonfilia : St. Ann's School, Midland, Texas
Wilson, Sister Robert Marie : Our Lady of Perpetual Help High School, Vancouver, B. C.
Wohlfort, Frank : Junior High School Division, Board of Education, New York, New York
————————: York Public Schools, York, Pennsylvania
York, Susan : Carmel Valley Junior High School, Carmel Valley, California
Ziegler, David : Red Lion Area School, Red Lion, Pennsylvania

COLLEGES

State College at Boston, Mass. : Margaret Quirk and Jeremiah Donovan
State College at Bridgewater, Mass. : Henry Mailloux and Lee Harrington
University of California at Berkeley, California : Stanley J. Bezuszka, S. J.
Dawson City Junior College, Glendive, Montana : ————————
Divine Word Seminary, Duxbury, Mass. : Francis Wehrle, SVD
College of St. Elizabeth, Convent Station, New Jersey : Sister Virginia Agnes Boulton
Fenn College, Cleveland, Ohio : Gordon Samson
Gallaudet College, Washington, D. C. : Maureen Evans
Immaculata College, Chicago, Illinois : Sister M. Zenobia Zygowicz
St. John College, Cleveland, Ohio : ————————
St. Joseph's College, Hartford, Conn. : Elizabeth Zaharek
King's College, Wilkes-Barre, Pennsylvania : Mrs. John Longo
State College at Lowell, Mass. : Walter Copley
Marist College and Seminary, Framingham Centre, Mass. : Raymond Fournier, S. M.
College of St. Mary of the Plains, Dodge City, Kansas : Alfons Van der Linden, A. A.
College of St. Mary of the Springs, Columbus, Ohio : Sister M. Kenneth Moore
University of Minnesota, Morris, Minnesota : Mildred Gausman

College of Our Lady of the Elms, Chicopee, Mass. : Sister Anna Cecilia
State University College at Potsdam, Potsdam, New York : Elmer E. Haskins
Rio Grande College, Rio Grande, Ohio : Jerry Ohm
Rosary Hill College, Buffalo, New York : Sister Marion Beiter
Southeastern Mass. Technological Institute, North Dartmouth, Mass. : Richard Reis
Tombroch College, West Paterson, New Jersey : Sister M. Bethany Mack
Urbana College, Urbana, Ohio : Dorothy Tate
Walsh College, Canton, Ohio : - Clifford Bronson
State College at Westfield, Mass. : Helen Peters
State College at Worcester, Mass. : Edmund Osborne